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EDITORIAL

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Science, art and industry are in a continual process of change and development, and yet man is so much a creature of habit

Difficulty in Changing Shop Methods

that he often unconsciously resists changes vital to his best interests. Perhaps this explains why in many railroad shops, new machines or methods of doing the work are introduced only with great difficulty and after unnecessarily long test periods. In some cases it is difficult to get new methods tried at all, and doubtless railroad shop operation is not now on as efficient a basis as it would be if shop executives and men as a whole kept in closer touch with modern industrial shop methods, adopting those best suited to railroad conditions and needs. All too often, satisfaction with a given process because it has always been done that way is a sign of indifference and laziness, pure and simple. The argument that it is best to leave well enough alone applies occasionally, but it can be greatly overworked. When used as a justification for resisting all changes and improvements in methods, it means mental stagnation and decay on the part of men holding it, and loss of money to their employers. One of the practical things which higher mechanical department officers can do to improve shop and roundhouse operation is to instill in their subordinates the idea that present shop methods are by no means perfect and a continual effort should be made to improve them. If shop foremen, for example, once get this idea and are encouraged to read technical papers and visit other shops, both railroad and industrial, where efficient operation obtains, the results in improved operation of railroad shops will be immediately noticeable.

In a recent issue of the *Railway Age* appeared an editorial entitled "The Water Supply and Traffic Movement." As

The Next Step to Consider

readers may recollect, this editorial referred to the extraordinary demands which are now being made and which will continue to be made for some time upon railroads of the country for transportation service. It dwelt upon the relation borne by the water supply to this situation. It referred to the responsibility resting upon all officers engaged in or having jurisdiction over water service so to adjust all operations and practices in this department as will contribute most effectively to the unobstructed movement of cars, and finally it enumerated typical operations and practices warranting investigations directed to this end. But what does it avail to devote consideration to this factor in transportation if no agency exists which can be depended upon to put any findings made into effect? This observation brings us to the next step to consider, namely, the importance of having a water service organization. Mention has been made to the responsibility of officers engaged in or having jurisdiction over water service. As a matter of fact, on those roads upon which, generally speaking, water service warrants particular investigation at this time, there are no such officers, in the proper conception of the term. On many roads the water supply rather than being the primary function of some one officer or officers is only the incidental concern of not only several officers, but of several departments. For instance, it often happens that the engineering department is found effecting a change entirely out of harmony with the immediate inter-

ests of the mechanical and operating departments and vice versa, or the operating department is found establishing a practice inconsistent with the best interests of either. As a result, what is everybody's business is made nobody's, and the water supply, though the management may not be aware of it, does not function as it should and could if properly handled. Admittedly, it can be handled in the unorganized way which is typical of many roads, but in the interests of transportation it ought to be the special function of a water service organization.

One of the objections which has been raised most frequently against the practice of classifying trains for movement through intermediate terminals

The "Main Tracker" Expedites Movement

without break-up is that it delays the cars so classified. In arriving at this conclusion consideration is given only to the originating terminal. It is evident that cars must be held longer at this point if trains are to be made up for a number of terminals than if they are grouped only for the next terminal and are forwarded as soon as there are a sufficient number to make a train. In raising this objection no thought is given to the time which is saved by keeping cars out of the intermediate yards. If a train can be moved through a terminal with only the minimum inspection and the changing of locomotives and cabooses and without breaking it up, it can proceed on its way with relatively little delay, whereas if it is necessary to break it up it is the common experience that the average delay to cars exceeds eight to ten hours. In general, on a line of fairly heavy traffic, any delay in the originating terminal is made up at the first terminal outside and the saving in time at other terminals is a net gain. That this practice expedites rather than delays traffic has been demonstrated on those roads which have applied this method systematically. One road which has specialized on the grouping of trains operating between large centers has found that the reduction of delays in the intermediate yards has enabled these schedules to be shortened as much as 24 hours in some cases, while at the same time it has been possible to add to the tonnage of these trains. From a competitive standpoint, this practice has enabled this road to secure business from other lines which are not able to make deliveries with the same regularity. This improvement in service was effected over and above a saving of one and a half million dollars in operating expenses in the first year it was in effect.

Commissioner Meyer recently called attention to the fact that one man out of every eight in railway service is a clerk

Give the Desk Man a Chance

and to this class may be added others whose work keeps them in the office, so that an even greater proportion are denied the broadening influence of a physical contact with the real business of transportation. It has often been said that the desk man is more susceptible to dry rot or petrification than the one who rides on trains or who is directly concerned with the maintenance of cars and locomotives or the tracks on which they run; there is no denying that this barrier between the

man at the desk and the real business of the company which employs him not only decreases his efficiency for the work in which he is directly employed, but curtails his opportunity for advancement. This condition may be overcome at least in part by affording the office man some measure of opportunity to see railroading first hand. A train dispatcher who rides over the division is not only afforded a chance to see what a train is "up against" in moving from "A" to "B", but he will probably get an "earfull" from a conductor or two which will provide him with ample food for thought, granting, of course, that it must be taken with several grains of salt. An agent directing a large city ticket office, handling a heavy coupon ticket business, recently testified to the increased efficiency of a young woman on the staff who obtained a first-hand knowledge of the more popular vacation trips by taking the tours herself as opportunity afforded. Another group, whose work may well be benefited by direct contact with the physical facts, includes the auditor of capital expenditures and his staff; this was recently exemplified in a tour of inspection made by an auditor and a chief clerk over a section of heavy second-track construction accompanied by the engineer in charge. These men went back to the office with a better knowledge of the physical significance of the expenditures with which they were dealing that will pay the railroad many times over for the time and traveling expenses incurred while on the line. The fact that a recent list of appointments to important operating positions on one railroad included the names of two men whose training had been primarily clerical testifies to the ability of the office man to demonstrate his merits if he is given the chance.

The commission appointed by the Irish provisional government to study the railway situation has recommended government ownership. These railways are

The Future of the Irish Railways

at present operated by 28 companies and have 3,500 miles of line. The railways were released from government control on April 15, 1921, and immediately found themselves faced with a serious labor problem, arising out of the dissatisfaction of the employees with wages and working conditions. Arbitration was resorted to but the employees were not satisfied with the result. The commission of inquiry was then appointed to try to find a solution of the labor problem and, in general, to design a workable plan for the future operation of the railways. The commission's report recommends the acquisition of the properties by the government, payment to be made in bonds rather than in cash; the operation of the railways by a board of eight members—one an experienced railway officer, four representing industry and trade, two representing labor and one representing the Irish treasury; and the setting up of sectional conciliation councils, a general railway council and a general conciliation board to deal with labor disputes. The Irish railways under private ownership have been in a most unfortunate position since the war. Wages have increased 300 per cent and prices of material and supplies have increased tremendously. On the other hand, water competition is severe, with most important producing centers located on the sea or navigable rivers. The advantages of centralized ownership and operation by the government are enumerated as: (1) The saving in supervisory personnel, (2) the co-ordination of the services to avoid duplication, (3) standardization of equipment, and (4) the purchasing of supplies in larger quantities. It is thought that the management by a board rather than by a cabinet minister will remove the roads from political control. Acquisition by the government seems to be the lot of railways the world over when they are so unfortunate as not to be able to pay high wages to their employees, offer low rates to shippers and pay dividends sufficiently at-

tractive to bring needed new capital into the enterprise. There seems to be no reason, however, why a combination of properties could not be brought about in Ireland as in England without government ownership and operation. The advantage of private initiative could then be retained together with any benefits which might arise from unified operation.

How often must a surprise test be made, for any given engineman, in order to afford reasonable assurance that his

How Much Surprise Testing Do You Do?

propensity to let his mind wander is being thwarted as thoroughly as possible? That is to say, as thoroughly as is possible by means of surprise checking. A speaker at the last convention of the signal engineers, in New York City, said that on his road each trainmaster is required to make 30 surprise tests a month. If a trainmaster has 90 enginemen that means on the average one test for each runner every three months. So far as the signal engineer is concerned, many of the tests included in most surprise schemes have no definite value. Practically all that he cares to know is that the engineman is vigilant at distant signals. If we exclude all tests but those at distant block signals, it is probable, on any road, that most enginemen are tested by the trainmaster less frequently than once in three months. Is not that spreading the tests out pretty thin? Even if a "test" means an eight-hour tour, in which surprises are sprung on as many enginemen as practicable, the adequacy of the program, as regards frequency, still remains questionable. A very practical question for every trainmaster is, How many men should I employ to assist me in this part of my work? Or, to put it in the way that the question first appeals to his mind, how many men can I afford to employ? How many will the general superintendent approve? The speaker to whom we referred believed it to be, probably, impossible for the superintendent of runners traversing 100 or 200 miles of line to enforce the high degree of vigilance in signal observance that prevails on the Interborough Rapid Transit Company's lines (where any runner can be interviewed every few hours and where all block sections are less than 1,000 ft. long); and that may be so. It is certain that the runner who aims to discipline himself finds the task much easier where block sections are short and of uniform length. It would be very interesting, however, to have a direct statement from any superintendent who will deliberately aver that he has done everything that can be done to imitate the discipline of the subway lines.

The prime object of transportation is to remove the barrier which distance imposes on commerce. Second only to this is the conservation of time. The im-

Increase Miles Per Hour by Decreasing Delays

portance of this second element has always been recognized in passenger service but it is only within recent years that any adequate consideration has been given to it in the case of freight train movement. For many years the ton-miles per trip, which is only another way of saying the tons per train, was considered an adequate measure of freight train performance. There is now a growing appreciation that the time consumed in making this trip must also be given some consideration and ton-miles per train hour is coming into use as a measure of freight train performance. This unit carries with it the suggestion that tonnage and time are opposing factors in the ratio and that if less tonnage means less time there might be a possibility of increasing the value of the ratio by decreasing the train load. Considerable light is thrown on this question by a series of tests conducted on the Illinois Central during the

Railroad Administration operation, an account of which will be found on another page in this issue. In the light of these tests the ton-mile per train-hour ratio seems to be a satisfactory measure not only of the amount of transportation per train unit but also of the efficiency with which it is rendered. The tests indicate, however, that the operation of light trains generally does not permit a sufficient decrease in time between terminals to increase the ton-miles per train hour because of the disturbing effect of delays, which were found to be the largest single factor in the equation. This gives emphasis to the importance of eliminating delay in order that the economy of operation as well as the capacity of the line may be increased. The elimination of delays requires the utmost care in every feature of train operation, but the dispatching and spacing of trains is the factor which probably affects the results most directly. Where excessive delays are constantly encountered it no doubt indicates a need for additional track facilities. But even in this case the best utilization of any additional facilities that may be secured, will only be obtained by the utmost skill in dispatching. The ideal conditions would be a scheduled operation which did not vary from day to day, thus making possible a 100 per cent utilization of carefully located passing tracks. Of course, no such operation can be obtained, but is there not a possibility that it may be much more closely approximated than it now is, by the establishment of fixed times for dispatching freight trains with time intervals based on the requirements of the maximum traffic, some of which may be cancelled without disturbing the others, when less trains are required? Some such methods of scheduling have already been tried on several railroads with marked success in the reduction of delays.

Developing Efficient Shop Employees

In the *Railway Age* for December 9, the Human Problems of the Mechanical Department were discussed and several suggestions were made as to what the Mechanical Division might do regarding the training of foremen. The question of the foremen is a big one, yet it is only a part of the labor problem in the mechanical department. Settling the strike has enabled many railroads to obtain their full quota of mechanics. But the individual efficiency of the employees is far more important than the number of men in the shop. The strike settlement did not automatically make efficient mechanics of the new employees and it did not remove the principal causes of labor unrest.

During the past few months shop organizations have been completely disrupted and it will take a long time to build them up again. The forces must be reorganized and while the railroads have the opportunity they should see that the forces are put on a better basis than before. There is a tendency to place the entire responsibility for training men upon the foreman. This is a mistake because the foreman already has too many duties. The railroads need to take more definite measures to train the men in the various crafts. Some railroad officers will, no doubt, say that on their roads apprentice courses are maintained for training competent mechanics. This is fine if apprenticeship really means more than time-serving, but how many competent all-round mechanics have come out of the apprentice courses in recent years? How can apprentice training be utilized in educating the many new men now in the shops? Training methods should be developed that will improve present conditions and that will be suitable to insure a sufficient number of competent mechanics under conditions that may be expected in the immediate future. Is apprenticeship impracticable under present conditions? Some roads maintain that the only salvation for the shops and roundhouses lies in the develop-

ment of specialists but, on the other hand, at some shops there is a waiting list of high-school graduates who have applied for admission to the apprentice courses.

No doubt a great deal of labor trouble could be avoided if railroad managements would deliberately pay more attention to keeping the employees interested and contented. There is a tendency in some quarters to regard this merely as a question of wages. As a matter of fact, it goes far deeper into the life of the workman. The average employee has an ambition to get ahead in the world; he cannot be satisfied without the consciousness of progress or the anticipation of increased future rewards. No doubt the reason why many men put their loyalty to the union before their loyalty to the company was because they believed the only prospect for larger income lay in the union's program. This indicates the necessity for providing graduated wage scales, piecework and bonus systems, or other incentives for the employees.

Another cause of discontent among the shop men is the belief, carefully fostered by the labor leaders, that railroad profits are unreasonably large and that the wage earners are not getting a fair share of the gross revenues. The campaign of misrepresentation has led to shirking, sabotage and strikes. It still threatens to undermine the organization. We read with amazement of the workmen breaking the first machinery that was built to increase production. Production at the present is not entirely dependent on machinery; it depends fully as much on organized effort. Today the unions are deliberately trying to break down the organizations on which production depends and are setting up friction which keeps them from functioning, yet practically nothing is done to counteract this.

The work of establishing a proper understanding among railroad employees should not be left entirely or mainly to public relations or labor specialists. The local officers should be made to understand that technical skill is only a part of their equipment; that an understanding of the human problem is of equal, or even greater, importance; that they should study carefully every condition which leads to discontent and thereby reduces production. The results obtained in shops still depends quite as much on personnel and organization as on facilities. No one can deny that the personnel problem is and will continue to be one of the most important factors in shop management and shop production. It is one of the outstanding problems and is so big and vital that the Mechanical Division cannot afford to ignore it. The question demands immediate and thorough consideration; this is another reason why the Mechanical Division should not fail to hold a real convention next year.

"Salesmanship in Transportation"

THE railways of the country might well publish and send to every employee who sells passenger tickets the address on "Salesmanship in Transportation" delivered by C. A. Cairns, passenger traffic manager of the Chicago & North Western Railway, at the annual convention of the American Association of Railroad Ticket Agents at Savannah, Georgia, on November 13. We publish most of Mr. Cairns' address elsewhere in this issue.

A very large part of all the people in the country buy passenger tickets every year. This is the only form of direct dealing with the railroads that most of them ever have. They have to give their tickets to the conductor but the conductors do not sell them anything. As Mr. Cairns points out, the ticket agent is a railroad salesman in exactly the same sense that a clerk in a store is a salesman. For the benefit of his employer the ticket agent should show the utmost courtesy to every customer and appreciation of the business the customer is giving to the railroad. He should

be so thoroughly informed regarding his goods, which consist of trips on railways throughout the United States, that he can promptly give to the customer all the information he desires. The salesman who does not know his goods and how to present their merits attractively is a poor salesman.

Mr. Cairns' address shows plainly that he knows most railroad ticket agents are poor salesmen. Everybody who has frequent occasion to buy tickets knows this. The average railway ticket agent is quite as well paid as the average clerk in a store but the average ticket agent does not greet his customer with the cordiality that the store salesman does; he is more likely to show ignorance of what he is trying to sell and he is more likely to treat the customer contemptuously if the customer shows ignorance about what he is trying to buy. A chilly attitude, curtness in speech and other characteristics never shown by salesmen are shown by a large majority of railway ticket agents. How many ticket agents ever even say "Good morning" in greeting a customer, or "Thank you," when they take the customer's money? Extremely few.

Mr. Cairns related the incident of a railroad that required its ticket clerks to keep a tally over a period of ten days of the number of the total prospective travelers who called. Subsequent comparison of the total prospects with the total sales made revealed a most unsatisfactory situation. A contest was then started among the ticket agents with prizes for increased sales, and the result was a large increase in the number of sales. The principal point of this story seems to be that the kind of ticket salesmen a railway will have will depend upon what efforts the management makes to develop ticket salesmen. The same thing is true of selling in every branch of the railroad business. Whether a railroad and its service will in the long run be sold right to its customers will depend mainly upon the efforts that the management makes to select the right kind of men to deal with the public, to teach them how to deal with it and to check up on their work to make sure that they are dealing with it right.

While Mr. Cairns' address dealt chiefly with salesmanship in the passenger department, most of it is of much broader application, and it may be read and pondered with profit by officers and employees in every branch of the business.

The Proposed National Transportation Institute

THE ESTABLISHMENT of a "National Transportation Institute" was advocated in addresses made at a dinner in Chicago last week by men representing three different points of view. Those making the addresses were Representative Sidney Anderson, chairman of the Joint Commission of Agricultural Inquiry of Congress, James R. Howard, president, and C. B. Hutchings, transportation manager, of the American Farm Bureau Federation, and Bird M. Robinson, the president of the American Short Line Railroad Association.

The idea of the need for such an organization was an outgrowth of the work of the Joint Commission of Agricultural Inquiry. This body made a remarkably thorough investigation of the relationship of transportation to agriculture and industry. It found it impossible to get a great deal of the information that it wanted. It also found, however, that when the facts regarding any particular situation could be ascertained it was comparatively easy to get men representing diverse interests to agree on the conclusions to be drawn from these facts.

The proposed National Transportation Institute would be supported by and would represent the large agricultural, manufacturing, mining, banking and transportation organizations of the country. It would have a twofold purpose.

The first of these would be to investigate and ascertain the facts regarding the relationship of railway rates and service to agriculture, to manufacturing, to mining and to the general public interest. Its second purpose would be to disseminate the information gathered and the conclusions reached among all special interests and the general public in order to form and maintain a sound public opinion regarding transportation matters.

The desirability of accomplishing the objects mentioned is plain. There is no other industry in this country which has been investigated so much and scrutinized so closely by public officials as the railroad business. There is no other industry regarding which so much information is available to those who really want it. The widespread prevalence of misinformation about the railroad business is chiefly due to misrepresentations of it by persons who have deliberately misstated the facts and by persons who have ignorantly repeated these deliberate misstatements. There is, however, a great deal of information not readily available which an institute such as that suggested could collect and make more readily available. But the most valuable function it could perform would be that of disseminating correct information with an authority that would cause it to be accepted by, and through channels and in ways that would cause it to reach all classes of people in all parts of the country.

If, however, such an organization were to accomplish anything that cannot be accomplished through existing organizations one thing would be prerequisite. This would be that it should represent and be supported by the agricultural, industrial and financial interests as well as by the transportation interests. If most of the money for its support were furnished by the railways the information given out and the conclusions stated by it regarding railroad matters would be discounted by many people to as great an extent as these same people now discount information given out and conclusions stated by organizations or persons representing the railroads. The first and most practical question to be raised regarding the proposed organization, therefore, is whether it can enlist the confidence and support of farmers' and business men's organizations. If it can the railways will be justified in giving it their reasonable share of the support it will need. If it cannot first command confidence and support from other interests, the railroads had as well have nothing to do with it.

A transportation institute which did not represent and receive its support ratably from and command the confidence of both those who buy and those who sell transportation service, but which was supported mainly or entirely by the railroads, would merely duplicate the work and expense of existing railroad organizations of high character, such as the Bureau of Railway Economics.

Do the business men and farmers of the country really want to know the facts about the transportation industry and about the relationship of its rates and service to other industries? Do they really want the facts disseminated among the public, and the public's policy of dealing with transportation agencies based upon the facts? Do they really believe that a fair and sound policy on the part of the government in dealing with transportation problems would be beneficial to all concerned? If they do, will they show their belief by indicating their willingness to give material as well as moral support to a proposed institute whose creation is endorsed and advocated by men so entirely removed from railroad influence as Mr. Anderson, who is chairman of the House Committee on Agriculture, and Mr. Howard the head of the largest farmers' organization in the country?

The railroads might well give their support to such an organization along with other special interests, because the railroads have everything to gain and nothing to lose by having the actual facts regarding them more thoroughly investigated and more widely disseminated.

The Standardization of Lumber

THE PURCHASER of lumber is at a marked disadvantage as compared with the buyer of steel because of the much greater variability of the product. The basic reason for this lies in the fact that the lumber manufacturers simply cut into workable shape and sizes a product otherwise entirely finished by nature, while the steel maker has almost complete control of the quality as well as the size and shape of the product. Because nature produces timber in infinite variety as to density and strength with an unending variation as to natural defects, no two pieces of finished lumber can be exactly alike. Furthermore, the common implements for reducing timber to finished lumber, namely, the saw and the planer, function through the reduction of a considerable portion of the material to sawdust and chips. This affects the sizes of the finished material with the result that a so-called "two by four" is rarely, if ever, two inches thick by four inches wide. Steel and iron have fixed specific gravities. Consequently, they are readily sold by weight, but the specific gravity of lumber varies with the species, the rate of growth and the water content, making it necessary to sell wood by volume, that is, by designating a given number of pieces of a specific size and length. This has led the unscrupulous dealer to depart even further from nominal sizes than is necessary because of the limitations of manufacture.

Efforts have been made from time to time by organizations of both the users and the producers of lumber to effect some measure of standardization which would correct some of the obstacles which beset the lumber buyer. However, owing to the fact that the industry covers widely separated territories with more or less diversified interests, the standards which have been set up are limited in their scope to the specific species of timber, consequently the grading rules established for one kind of lumber differ widely from those set up for competing species produced in other portions of the country.

It is in an effort to effect a further standardization of lumber practices that a movement has been started through the agency of the United States Department of Commerce under the leadership of Herbert Hoover. Actually, the efforts are being directed through a voluntary organization in the lumber industry, representing the manufacturers, wholesales and retailers. The Department of Commerce is a party to this project only insofar as it can be of assistance to the representatives of the industry in carrying out the work. Thus far, the deliberations of the committee are still in a preliminary stage and involve a determination of the degree of standardization to be attempted, the drafting of tentative specifications and rules and a thorough discussion of all the questions involved to insure a thorough understanding of the effects of any changes on the various interests concerned.

The progress being made indicates that the work will resolve itself into a simplification of grades, the standardization of sizes and the specification of quality and quantity through the branding of the lumber, the carding of cars and organized inspection. This development is of vital interest to the railroads because of the large amount of lumber that they consume, not only as direct purchasers but in the awarding of contracts for construction work involving the use of lumber bought by others. The movement will also accrue to the advantage of every lumber manufacturer and dealer whose business is founded on square dealing.

AMERICAN CITIZENS coming from Europe and landing at Quebec numbered in the month of September more than 4,000; and thus far during the present year passengers bound for the United States landing at Quebec totaled 16,841 which is more than 50 per cent above the number recorded for the corresponding period of 1921.

New Books

A Selection of Cases Under the Interstate Commerce Act. Second Edition. Edited by Felix Frankfurter, Byrne Professor of Administrative Law in Harvard University. 789 Pages. Size 6½ in. by 9½ in. Bound in cloth. Published by Harvard University Press, Cambridge, Mass.

This book brings up to date the first edition published in 1915. The preface to the former edition contained a statement that the selection of cases included in the volume had been prepared for use in the Harvard Law School. Presumably the second edition is primarily intended for law school students, a factor which, incidentally, rather has a tendency to emphasize how important a factor in legal and judiciary activity the law dealing with public regulation has long since become.

The book, of course, has a value considerably outside of that intended for the law school student who is studying the law relating to railroad or public utility regulation or for the member of a legal department of a railroad. Other railroad men frequently have reason to look up the law relative to federal railroad regulation, and a book of this kind—presuming that the outstanding and more interesting cases are included—would prove of considerable value as a book of reference.

The editor of the volume has included only the decisions themselves; there are no notations or comments on the decisions. The cases are arranged under four divisions, each divided into sub-divisions. They are: I Scope of Commerce Regulated by the Act, subdivided under (1) kinds of carriers, (2) kinds of commerce and (3) "railroad" and transportation; II Duties of Carrier Under the Act, subdivided under (1) services to be rendered, (2) equality of service and (3) maintenance of competition; III Functions of the Interstate Commerce Commission in the enforcement of the Act, subdivided under (1) constitutionality and (2) powers and duties. The fourth section, headed, Function of Courts in the Enforcement of the Act, is divided into (1) primary jurisdiction of the commission, (2) Judicial review and (3) proceedings for enforcement. The cases are almost entirely decisions of the United States Supreme Court, with the exception of the larger part of the third section, which consists of decisions of the Interstate Commerce Commission itself. Included among the decisions are a number of such as the Western Rate Advance Case, the Fifteen Per Cent Case, Increased Rates, 1920, etc.

Inasmuch as the book is a compilation of cases only, it seems hardly necessary to enlarge upon the manner of formulation or the importance of the principles which are embodied in the Interstate Commerce Act and the many court decisions relative to it. It is presumably generally enough understood that the law on the subject is to be found not only in the various acts themselves but also in the long series of decisions in the courts which have guided the workings of the legislative enactments and in truth the formulation of many of the things now contained in the legislation.

Sampling and Analysis of Pig Iron. By the Chemists' Committee of the United States Steel Corporation. 40 pages, 6 in. by 9 in., bound in paper. Published by the Carnegie Steel Company, Pittsburgh, Pa.

This book describes the accepted and approved methods used by the chemists of the constituent companies of the United States Steel Corporation for the sampling and analysis of pig iron, which have been revised to include the latest practices. The work is not only authoritative, but it is also very complete. In addition to methods for determining the more common elements, the determination of titanium and of copper are described.

Letters to the Editor

[The RAILWAY AGE welcomes letters from its readers and especially those containing constructive suggestions for improvements in the railway field. Short letters—about 250 words—are particularly appreciated. The editors do not hold themselves responsible for facts or opinions expressed.]

The Shipper Needs Information

CHICAGO.

TO THE EDITOR:

I have noted with a considerable degree of interest the article of Winthrop Martin in your issue of November 18. It seems surprising that an article of this type was able to overcome the rather conservative barriers of the *Railway Age*. However, as it no doubt represents the typical views of a large class of shippers, its publication may be of value in presenting in organized form the views of a disgruntled patron of the railroads.

In the first place this article represents the trend of the times—that trend so aptly expressed in the results of the late election. It represents an opinion, formed from personal contact, and with no further effort being made to ferret out causes, or to determine the reasons for conditions complained of. "That the conditions exist is sufficient," argues Mr. Martin. "Let's change them." No thought apparently is given to changing the causes.

Mr. Martin was not always handicapped thus. Perhaps he can remember the time when the Interstate Commerce Commission did not exist. Perhaps he can remember when the commodity tariff file consisted of letters from the general freight agent telling the forwarding agent to apply a certain rate, a rate that was often very agreeable to the shipper and would help him to develop his business. In those days, Mr. Martin would have no difficulty in obtaining any desired rate.

Another thing, has Mr. Martin ever wondered why "an auditor may drag an item from a mildewed file and an outraged law department may come roaring after me for the difference involved?" Has he ever speculated on the expense involved in maintaining that audit office and that high priced legal department? Does he think a carrier, as a business institution, could spend fifty dollars to collect an undercharge of fifty cents, unless it was compelled to? And who compels it? Why, Mr. Martin, himself, and his fellow shippers, through their regulatory measures, passed by their representatives in Congress, interpreted by the Interstate Commerce Commission and enforced by the courts. While a carrier must collect every cent due it by every means possible regardless of cost, until the item proves absolutely uncollectible, a business concern that is able to conduct its business unhampered by regulation would charge it to profit and loss if the expense and trouble were in excess of the benefit. Mr. Martin won't permit a railroad to do this. Its bills must be revised and checked until no chance for an error remains for fear he, himself, or his friends might be discriminated against.

While it is true that tariffs and rules are complicated and while railroad men have an "excessive passion for being on the safe side," what is the reason? Did Mr. Martin ever read the Interstate Commerce Act or the Transportation Act and has he ever taken the time to find out to what minute detail the provisions of these laws have been applied to railway practices? Let him read some of the conference rulings of the Interstate Commerce Commission if he wishes to find out why tariffs are complicated or have him review some of

the court decisions based on the various regulatory acts if he has a real desire to find out why a railroad employee has "an excessive passion for being on the safe side." Mr. Martin and his fellow shippers have, through their agents, the Congress of the United States and the various state legislatures, ordered the carriers to be on the safe side. Why should he complain if his demands are lived up to?

Then, there's the cause for the numerous overcharges and undercharges. Here we meet again the same situation that prevented the rate being quoted right in the first place—the complexity of the tariffs. In his fear of being discriminated against, Mr. Martin has forced the carriers to go into such details and finesse in the application of their rates and regulations that, owing to the deficiency in the power of the English language to make a statement understandable, the rule or rate is often interpreted differently by every railway official or employee who attempts to apply it.

Mr. Martin complains about the delay in settling claims. Doesn't he know that he has forbidden a railroad to settle a claim without making a thorough investigation of its merits? To do so would be a violation of a law that he ordered passed. Why complain then of the delay, for it takes time to investigate such causes in such an extended organization as a railway company.

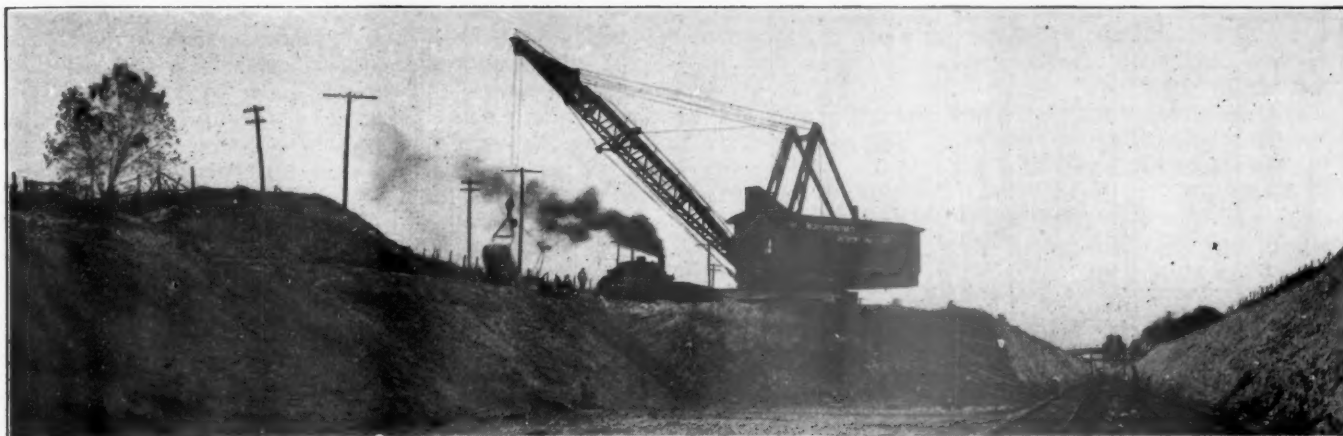
Space forbids going into the other subjects covered by Mr. Martin's article. It is quite evident that they are discussed by him only after a cursory examination of actual conditions or of conditions that exist at one station. But there is one message that his conclusions can convey. It can best be presented by a personal reference. In my ten years of intense reading and study of the transportation business, I have seen innumerable statements that the railroads were being overregulated and if let alone would work out their own salvation. I have read dozens of "panaceas" and "solutions" of the railway problem, but I have never yet seen in public print a concrete explanation or a concrete instance of overregulation. No one has ever taken the trouble to show by definite cases, for the understanding of shippers and railway employees, how railway operations are hampered by regulation. Everyone who speaks or writes an article on the subject seems to take it for granted that specific instances can be found only in the proceedings of investigation committees or in the personal experiences of officers and employees.

What is the result? First, we have the antagonistic attitude of a certain number of shippers as is typified by the article of Mr. Martin, who blame the carriers for conditions when in reality the two causes are something in which the carriers have no control—over-regulation in this case. Second, we have the lethargy of railway employees in seeking the true causes of conditions complained of. They are unable to understand the application of a general statement unless concrete cases come under their observation.

In the first case a little explanation would perhaps change a hostile shipper to a friend of the carrier, but because the employee is unable to explain, due to his ignorance of the true causes of the conditions complained of, he either agrees with the shipper or expresses his indifference. A proper presentation of the problems of the carriers will do more to allay ill-feeling on the part of shippers and promote loyalty on the part of employees than any other undertaking that the railroads could engage in.

C. E. PARKS,
La Salle Extension University, Chicago.

AUTOMOBILES EXPORTED from Canada now constitute a considerable freight movement. In the month of October, shipments were made to Australia, South Africa, New Zealand, Sweden, Switzerland, United Kingdom, Turkey and the United States. The total value of these exports in that month was more than 2½ millions.

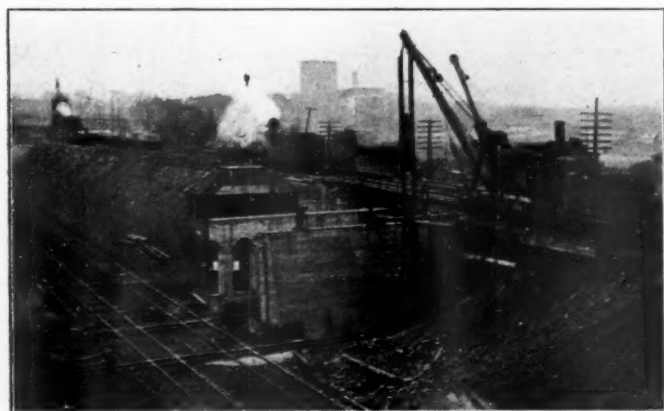


The Drag Line at Monee Cut

Illinois Central Improves Line Near Chicago

Reduces Grades and Adds to Tracks Between Matteson, Ill., and Kankakee Under Heavy Traffic

WHEN IT BECAME EVIDENT early last spring that the mines in Southern Illinois would be closed by a strike on April 1, the management of the Illinois Central decided to take advantage of the expected lull in traffic to reduce the grades and construct additional main tracks between the south limits of the Chicago suburban zone at Matteson, Ill., and Kankakee, 25 miles further south.



Looking South at Matteson with the E. J. & E. Crossing in the Foreground

While the decline in traffic lasted only for a short time, owing to the movement of large quantities of coal into Chicago from the non-union fields in Kentucky, this work has been pushed actively throughout the season and is now nearing completion. It involves a total expenditure in the neighborhood of two and a half million dollars, comprises about 1,000,000 yd. of excavation, and when finished will afford marked relief in the section of the line which now constitutes the throat of the Illinois Central System.

Except for a secondary line extending west through Northern Illinois to Omaha, it is over this line that all Illinois Central business enters and leaves the city. It not only carries all of the traffic of this road between Chicago and southern points, including a heavy tonnage of coal from Southern Illinois, but also a considerable traffic from the St. Louis line which connects with the New Orleans line at

Gilman, about 25 miles below Kankakee. The traffic is further enlarged at Kankakee by the business of the Big Four which is handled between that point and Chicago by the Illinois Central. This traffic has increased rapidly in recent years and averaged about 32 passenger and 58 freight trains a day during the period of construction.

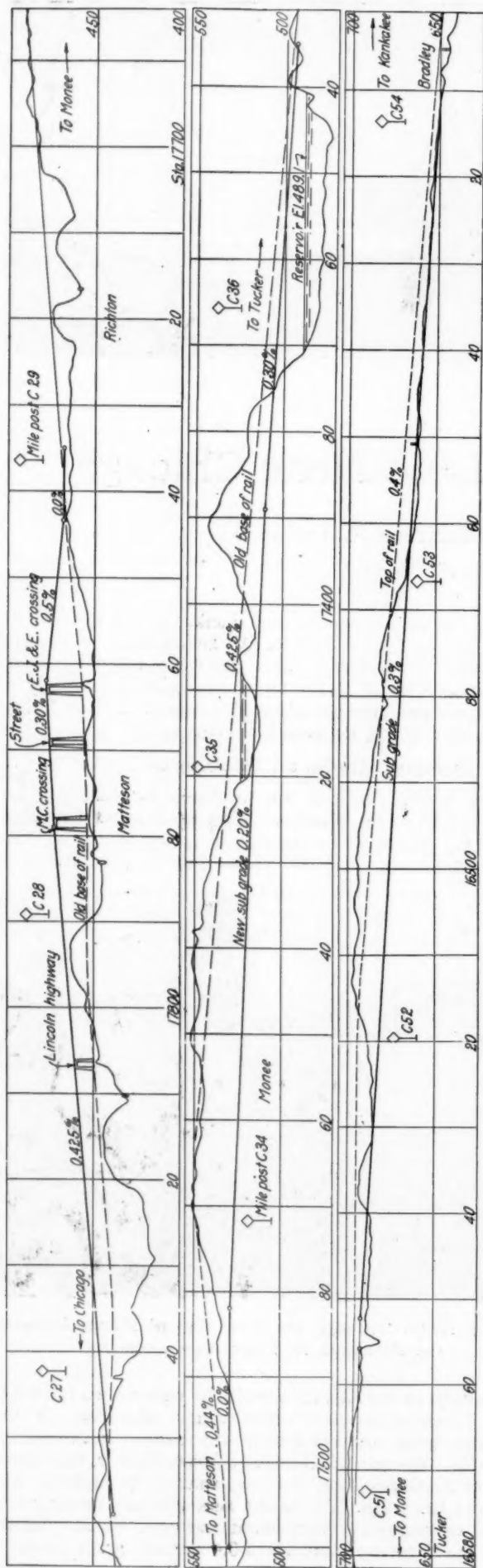
Adverse Grades an Obstacle to Traffic

While ample facilities are available for handling the traffic as well as the heavy suburban business between Matteson and Chicago in the presence of a long stretch of practically level track, increasing from four to eight tracks in

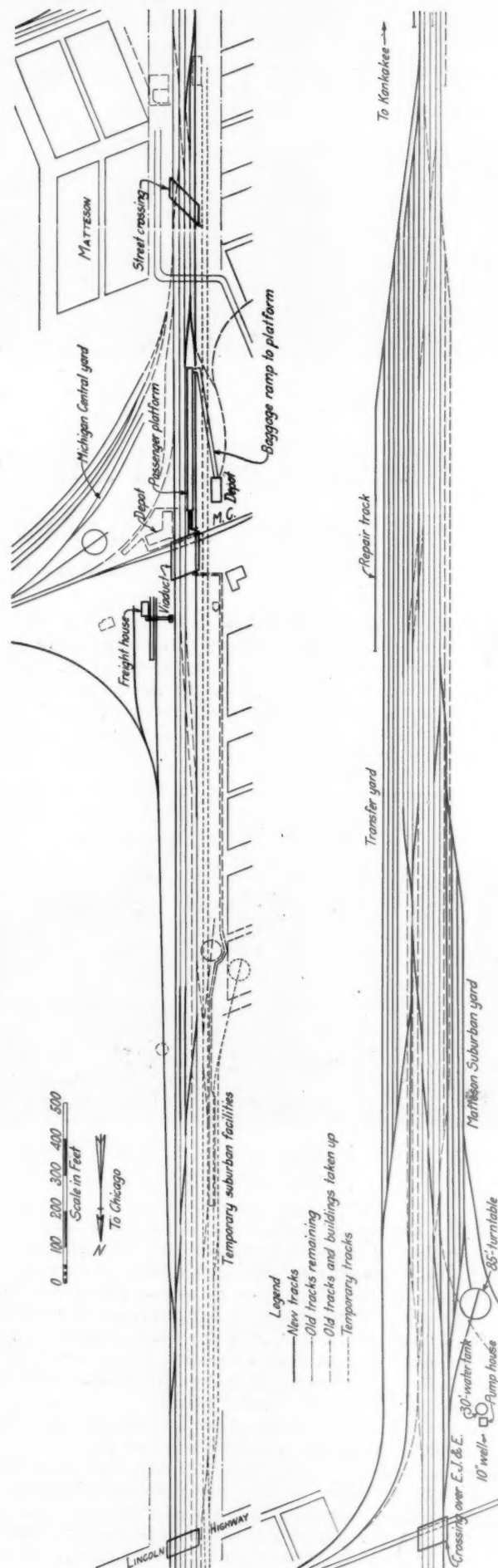


Looking North Through the First Cut at Monee Showing the Elevators in Their New Location

the direction of the city, the conditions were not so favorable in the 27 miles between Kankakee and Matteson. In the first place, traffic over this section was confined to two tracks, except for a distance of 11 miles between Tucker, four miles north of Kankakee, and Peotone, where a third track was laid three years ago. The grades were also adverse over this section, especially for northbound tonnage. Almost immediately upon leaving Kankakee, a 0.4 per cent grade extended



Profiles of the Grade Separation at Matteson, Upper; the Grade Reduction at Monee, Center; the Grade Reduction at Tucker, Lower



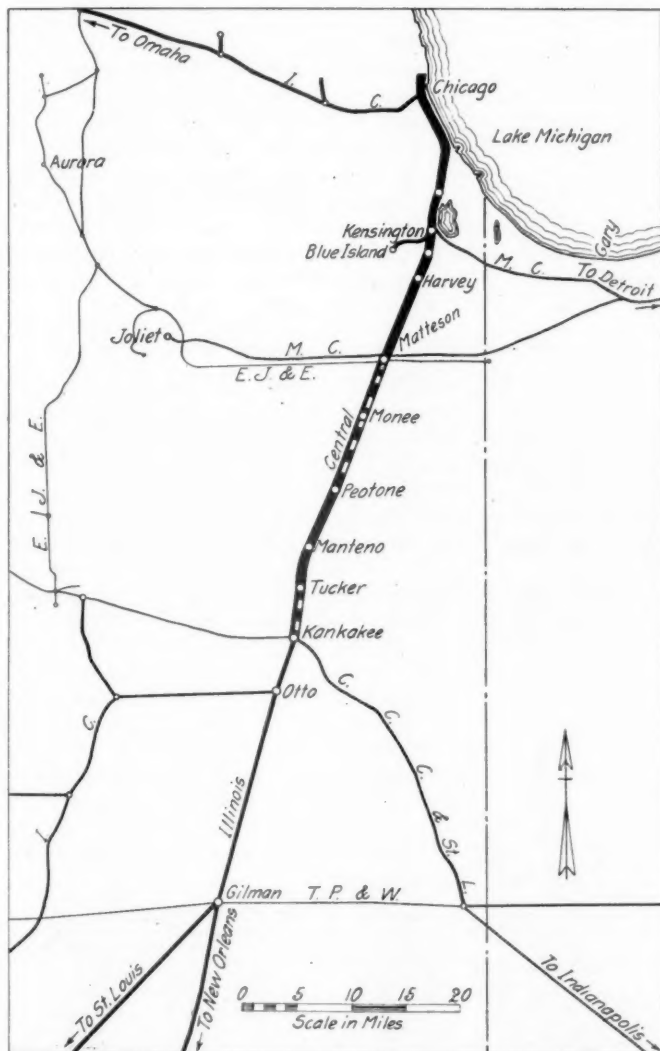
A Plan of the Layout at Matteson Showing the Final Arrangement of Tracks and Buildings Together with the Changes Made Preparatory to Grade Separation

for about $2\frac{1}{2}$ miles to Tucker. Beyond this point more favorable grades were encountered until near Monee, where a 0.425 per cent grade extended for nearly two miles to the top of the hill, 160 ft. above Kankakee. This summit constituted a similarly formidable obstacle to trains proceeding southbound, as it was approached by long 0.4 per cent grades. Added to these obstacles were grade crossings with the Elgin, Joliet & Eastern and the Michigan Central at Matteson.

To improve conditions and give greater capacity, it was decided to extend the four track system from Matteson, south for about seven miles to Monee. As a third track was already in service between Peotone and Tucker, it was decided to continue this track north to the end of the four track section

the necessity of conducting all work under traffic, and the premium placed on speed, the work was divided into two units, each under the supervision of an assistant engineer reporting to an engineer in charge. The larger of the two was the Monee-Matteson unit, the most spectacular feature of which was the work undertaken in the vicinity of Monee. As before stated, the problem at Monee consisted of reducing about three miles of 0.425 per cent grades to a maximum of 0.3 per cent. To accomplish this and to provide the additional trackage planned, necessitated making a cut directly through Monee which ran 20 ft. deep for about a mile, averaged about 100 ft. in width at subgrade and involved in the neighborhood of 700,000 yds. of excavation.

The proportions of the work suggested the advisability of using a dragline outfit, which was accordingly installed, together with two steam shovels. In order to provide for traffic during the progress of the work, the first step undertaken was that of making a cut 30 ft. wide at the bottom for the entire length of the cut on the east side. To do this the steam shovels removed the approaches at each end, after which the dragline completed the remainder of the heavy excavation in this first cut, utilizing the adjacent main line track for loading. A new track was built west of the main tracks which with the southbound main track were used by traffic. After this cut was completed, two main tracks were



The Illinois Central System and Tributary Lines Near Chicago

at Monee, and to Kankakee on the south and to install interlocking plants at intermediate stations to permit the diversion of trains from one track to another. It was also decided to reduce the $2\frac{1}{2}$ miles of 0.4 per cent grade between Kankakee and Tucker to 0.3 per cent and to reduce the 0.425 per cent grade approaching Monee from the south to 0.3 per cent. As this involved heavy excavation through Monee a large amount of material was available beyond that required for the new tracks and it was further decided to separate the grade crossings at Matteson by carrying the Illinois Central tracks overhead.

The Monee Cut Was a Big Problem

Because of the distance between the two points at which it was decided to reduce grades, the size of the entire project,



Looking South from the Michigan Central Crossing at Matteson Prior to Grade Separation

laid in the bottom and the dragline returned to the south end of the heavy work where it again began working north, removing the remainder of the cut to the full width as it went.

The dragline proved particularly efficient in this work. Equipped with a five yard bucket operated from a 75-ft. boom, this machine cut a section for the full depth of the cut and 60 ft. wide at the bottom. It handled about 3,200 yd. per day of two shifts, the excavated material, which is of heavy clay, being carried to the dump by four contractor's trains, each containing 15 air dump cars of 12 yd. capacity. These trains were loaded on a temporary track laid along the top of the west slope and were hauled over the main tracks under the supervision of Illinois Central conductors to Matteson and to the Markham yard at Harvey, five miles north of Matteson. On account of the long haul (reaching a maximum of 12 miles and averaging six miles) and the necessity of operating over the main line, the trains constituted the limiting factor in the work, the dragline itself being capable of handling half again as much material.

Before beginning the work at Monee it was necessary to move two elevators to new positions across the track (no mean job in itself in the face of traffic) and two viaducts have been built to carry highways over the tracks. The work at this point also required the moving of the station to a new location and the building of several industry buildings. Another problem which arose by reason of the reduction of the grade at Monee involved two water supply reservoirs at the south end of the cut. The smaller of the two reservoirs, constituting the original source of water at this point, en-

croached upon the new roadbed, because of which it was decided to drain it. This was done by excavating a ditch in the cut sufficient to carry all water to the larger reservoir, which was located some distance down hill.

The Problem at Matteson Was Grade Separation

As stated before it was decided to utilize the material obtained from the Monee cut to separate grades at Matteson. To do this as well as to extend the four tracks through the town from the north required extensive changes in the existing layout at that point. Approaching Matteson from the south, were two main line tracks which extended through the town, crossing consecutively, the two tracks of the E. J. & E., a street and a crossing shared by the Michigan Central and a street adjacent to it, beyond which it merged into the four track section which crossed the Lincoln Highway, about a half-mile distant. Leaving the main line on the east side about a mile south of Matteson, was a track which also crossed the E. J. & E., and then continued north to within a short distance of the Michigan Central crossing, where it turned east to form a transfer connection with the Michigan Central. Leading off from this switch lead, in turn, at Richton, about a mile south of Matteson, was a yard of four tracks running parallel with the switch lead and providing northbound interchange facilities with the E. J. & E., with which it connected through a single track lead. To the south of the E. J. & E. crossing and to the west of the main line were three tracks which served as a southbound interchange yard with the E. J. & E.

Further, in the short distance between the E. J. & E. crossing and the Michigan Central crossing was a lead extending from the switching lead to a yard of the Michigan Central. The Matteson freight and passenger station, a frame structure adjoining the switching lead on the east, was also located in this area. Extending for about one-half mile north of the Michigan Central crossing on the west side of the Illinois Central main line were the two tracks devoted to

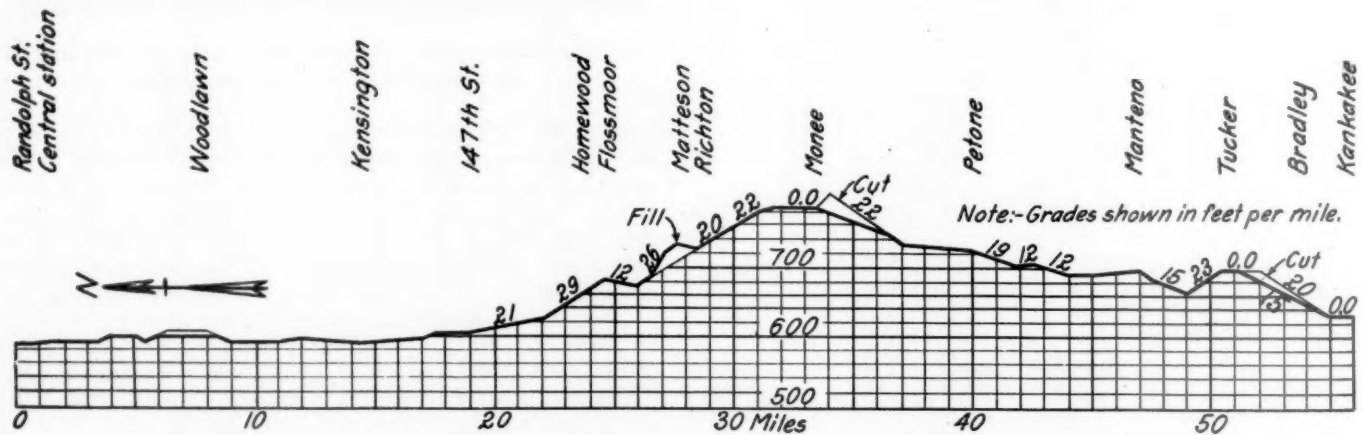
permanent work the transfer lead into the Michigan Central yard, situated just beyond the E. J. & E. crossing, was taken up and a new transfer track established north of the Michigan Central crossing by laying a track some distance east of the toe of the new slope and extending it north to a connection with the main line beyond the Lincoln Highway, this work requiring the removal of the pumping facilities for the suburban water supply from the east side of the main line to a new location on the west. At the same time the combination freight and passenger station was dismantled, the passenger section being moved west of the grade separation work where it was established at street level, and the freight station being moved north of the Michigan Central crossing in the vicinity of the new transfer track, just mentioned, an elevator later being installed to afford communication with the elevated tracks.

This done, the suburban tracks on the west were swung out of the way, through traffic was turned over two temporary tracks established west of the existing roadbed, the old main tracks were torn up, and a trestle was built to carry a single track over the entire length of the work with its deck 3 ft. below final grade. Earth was then hauled from the Monee cut over the newly laid eastbound tracks and dumped at the rate of about 350 cars a day continuously until a grade for three tracks was completed, when two tracks were opened to through traffic.

Considerable Concrete Work Was Involved

As the filling was being placed the concrete work was being pushed to completion. This involved the placing of about 12,500 yd. of concrete and consisted in building extensions to several culverts, a two span crossing over the two tracks of the E. J. & E., a street opening about 700 ft. north, a four span crossing over the Michigan Central and the adjacent street and a second crossing over the Lincoln Highway.

Both road crossings were built to give 21½ ft. clearance,



A Condensed Profile from Chicago to Kankakee Showing the New Work Which Was Undertaken

suburban service, together with the suburban station and turntable.

The first step in the construction program at this point consisted in converting the through switch lead into a third track, moving the station at Richton from the east side of the track to a location west of the future fourth main track and establishing a new switch lead, which was extended north to a point just beyond Richton station where it became the west track of a nine-track yard extending as far north as the E. J. & E. crossing and built to accommodate both north and southbound interchange business with this line, thus replacing the existing interchange yard on either side of the main line which encroached on the space required for the new work. To prepare the layout still further for the

which clearance was secured at the Michigan Central crossing by lowering the tracks of this road 4 ft. These crossings consist of reinforced concrete abutments and intermediate columns, topped in the case of the Michigan Central by reinforced slabs, and, in the case of the E. J. & E., by concrete-encased I-beams. Of the two structures the Michigan Central was much the larger, requiring about 2,500 yd. of concrete and consisting of a four span structure designed to afford access from the street level to the passenger platform on the new grade by interior stairways.

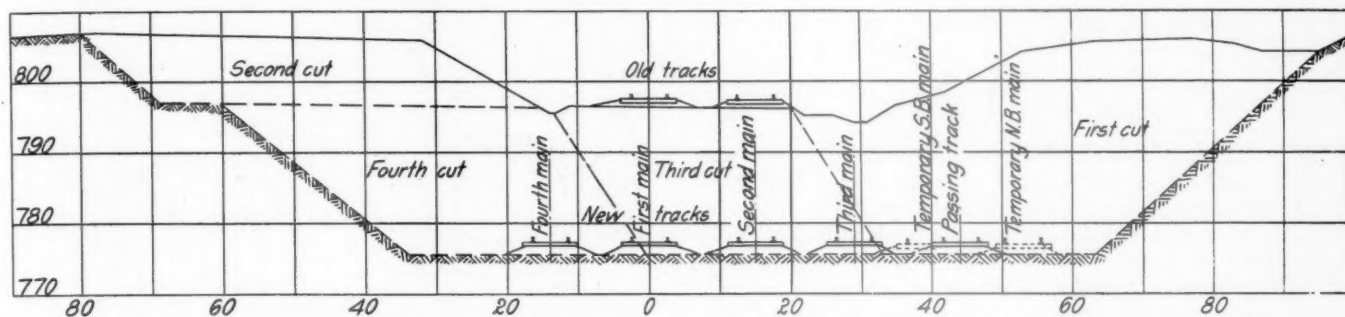
Except for the extension of culverts, where hand mixers were used, and the construction of the Lincoln Highway subway about 1,000 ft. north of the Michigan Central crossing, where a half yard steam mixer was employed, this

concrete was all mixed and placed from a central plant situated between the Illinois Central main line and the Michigan Central yard. This plant consists of a steam-operated one yard batch mixer, a tractor crane for unloading aggregate from the cars, a stiffleg derrick for filling the mixer bins from the storage piles and a system of tracks over which one yard hopper cars were hauled to their destination by gasoline tractors, there to be hoisted to a point from which the concrete could be spouted into the forms or where, in the case of the slab construction carried on near the plant, the buckets could be picked up bodily by the tractor crane and emptied directly.

With the completion of the grade separation work at this point, which involved 750,000 yd. of fill, the remaining

maximum depth of 10 ft. and produced 225,000 yd. of excavation. Since this was 100,000 yd. in excess of that required for the new third track on the east of existing main line, the remainder was wasted along the west side between Kankakee and Peotone to provide for a future main track.

This work, while lighter than that at Monee, was not without its problems, the most interesting of which was the encountering of a water pocket about 1,900 ft. long in the underlying rock when making the first cut. For a time this pocket presented a serious obstacle to the progress of the work, but it was completely drained by widening the cut 10 ft. and establishing a ditch along the top of the east slope. The excavation from the cut was handled by two contractors' trains averaging 15 cars apiece. As on the



A Typical Section Through the Monee Cut Showing the Old and New Tracks

work at Matteson consists only of removing the tracks which were laid temporarily for use by suburban and through service and to build a four track suburban yard south of the E. J. & E. crossing so that suburban trains might enter Matteson on the main line tracks and proceed down into the yard on a $1\frac{1}{2}$ per cent grade.

As before mentioned, the work eliminated the necessity for interlocking towers at the Michigan Central and the Elgin, Joliet & Eastern crossings as well as watchmen at all street crossings. This separation of grades was not accomplished without increasing the gradients somewhat on both sides of the work. The new grade of 0.425 per cent on the north, however, does not exceed the ruling grade over the district while the grade on the south approach is so short that it presents no obstacle to traffic, which approaches it from Monee on a descending grade.

The Tucker Unit Was Also Interesting

The Kankakee-Tucker work was carried on contemporaneously with that between Monee and Matteson. As stated before, this work consisted of reducing about 2.5 miles of 0.4 per cent grade to 0.3 and extending a third track from Kankakee to connect with the existing third track at Tucker. This required several changes in the layout at Kankakee, consisting essentially in making a three track connection with the Big Four yard about four blocks to the east, converting the west track of the existing yard into a new third main track and moving this yard east, as well as moving the track scale to a new location and effecting other minor yard improvements.

The grade reduction work itself began about a mile north of Kankakee at Bradley and involved shovel work carried on in three stages. A cut 30 ft. wide at the bottom was first carried through to Tucker on the east side of the existing roadbed, the earth being carried back to form the grade for the new third track between Kankakee and Bradley, and a track laying gang following behind the shovel with two permanent tracks. Upon the completion of this cut through traffic was turned onto these tracks, the old main line taken up and a second cut was carried through for the new third track. Following this a third cut was then made to make room for a fourth track. This cut gradually increased to a

Monee work these trains were in charge of Illinois Central conductors owing to the necessity at times of operating them upon or across the main operated tracks.

Interlocking Towers and Special Track Facilities

In addition to increasing the number of main line tracks and as a means of increasing their capacity still further, three interlocking plants were installed, one each at Tucker, Manteno and Monee, the latter at the end of the new four track section. For this purpose an old station was appropriated at Tucker while at Manteno, Peotone and Monee new towers were built which are of brick construction, fully equipped with heating facilities and modern interlocking equipment. These plants afford the means of diverting trains from one track to another at will. Passing tracks 4,000 ft. long were located at all stations, and at Tucker, Manteno, Peotone and Monee, besides the interlocking plants mentioned, there were also located additional 2,600 ft. passing tracks for use by local freight trains, thus providing the means of keeping them off the main line while doing switching service at these points. No. 18 frogs are installed at all facing crossovers between main tracks and all tracks are laid with 90 lb. rail.

Although the track work as well as the grading and concrete work were contracted originally, the track work was finally done by company forces, it having developed early in the progress of the work that delays both to through traffic and the construction work itself could be avoided only by company forces taking over the track work. The grading was begun on April 15, within three weeks after the contracts were let and the work has been pushed forward without interruption since that time with the result that all traffic has been carried on the new grade for several weeks.

The New Work Aids Traffic

The completion of the work will aid greatly from an operating standpoint. Aside from expediting the movement of trains, it enables the company to take advantage of an unusual and fortunate traffic condition at Kankakee. As mentioned in the early part of this article, the Illinois Central handles the Big Four business from Kankakee into Chicago. As the ruling grade between Kankakee and Matteson has

now been reduced below that between Kankakee and Champaign, the southern end of the district, it is now possible to load trains out of Champaign for the ruling grade south of Kankakee and fill them out at Kankakee with full tonnage for Chicago. The train rating over the section north of Kankakee has been increased from 3,800 tons to 4,400 tons.

Three contractors were engaged in the work, M. L. Windham, Centralia, handling the grading between Kankakee and Tucker, and the Walsh Construction Company, Davenport, Iowa, handling that between Peotone and Matteson, while the Bates & Rogers Construction Company, Chicago, placed all of the concrete involved in the latter unit. This project has been carried on under the direction of F. L. Thompson, chief engineer of the Illinois Central and F. W. Armstead, assistant to chief engineer, with T. H. Robertson as construction engineer in immediate charge.

Freight Car Loading

THE NUMBER of cars loaded with revenue freight during the week ended December 2, which included the Thanksgiving Day holiday, dropped to 845,219, which was a decrease of 110,000 cars as compared with the week before. This compares with 741,849 in the corresponding week of last year and 882,604 in the corresponding week of 1920, but in those years the holiday occurred during the preceding week. In the week which included Thanksgiving last year the loading was 673,465 and in 1920 it was 803,701. For six weeks, therefore, aside from the effect of the holiday, the loading this year has been in excess of that for 1920. Because of the effect of the holiday, comparisons are not particularly valuable, but grain and grain products loading showed a decrease of 5,000 cars compared with the week before; live stock decreased nearly 6,000; coal decreased nearly 16,000, to 186,158; coke loading showed only a slight decrease; forest products decreased 6,000; ore, 5,000; merchandise, 29,000, and miscellaneous, 43,000.

The freight car shortage had been reduced to 133,786 cars on November 30, a decrease of 18,781 compared with the total on November 23. The shortage in box cars amounted to 67,468, a reduction of 11,569, while the shortage in coal cars totaled 42,848, a reduction of 835. At the same time, 5,595 surplus freight cars of various classes were reported, an increase within a week of 289 cars.

Locomotives in need of repair on November 15 totaled 18,356 or 28.5 per cent of the number on line, according to reports filed with the Car Service Division. This was a decrease of ten locomotives as compared with the number

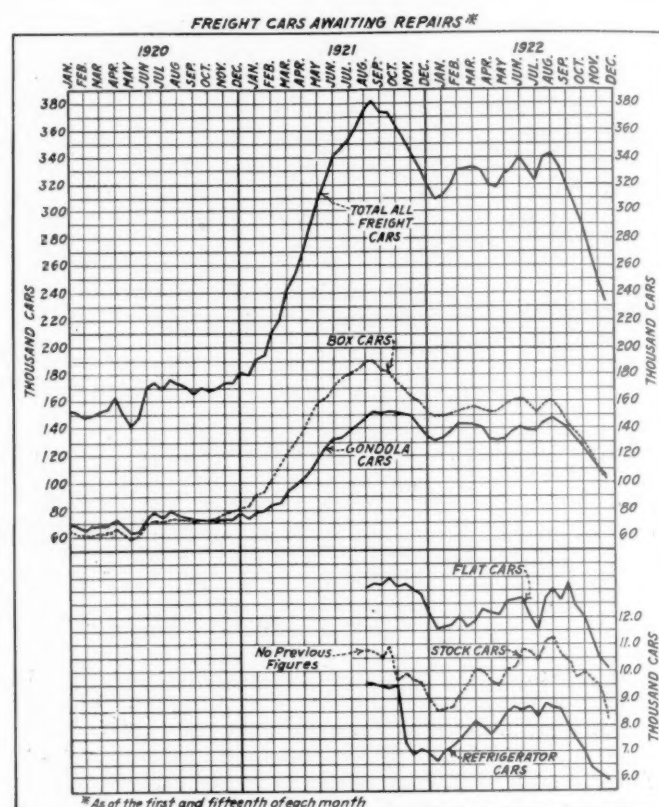


Chart Prepared by Car Service Division of A. R. A.

Freight Cars Awaiting Repairs

The above chart shows a comparison of freight cars awaiting repairs by classes since January 1, 1920. The heavy increases from January 1 to August 15 of last year was the result of accumulation of cars on home roads following heavy service during the previous year and a subsequent reduction in car requirements due to falling off in business during the first nine months of 1921.

As business increased after the middle of August, 1921, cars awaiting repairs decreased until January 1, 1922, after which time they remained practically the same due to labor difficulties until August 1, since which time they have steadily decreased.

REVENUE FREIGHT LOADED

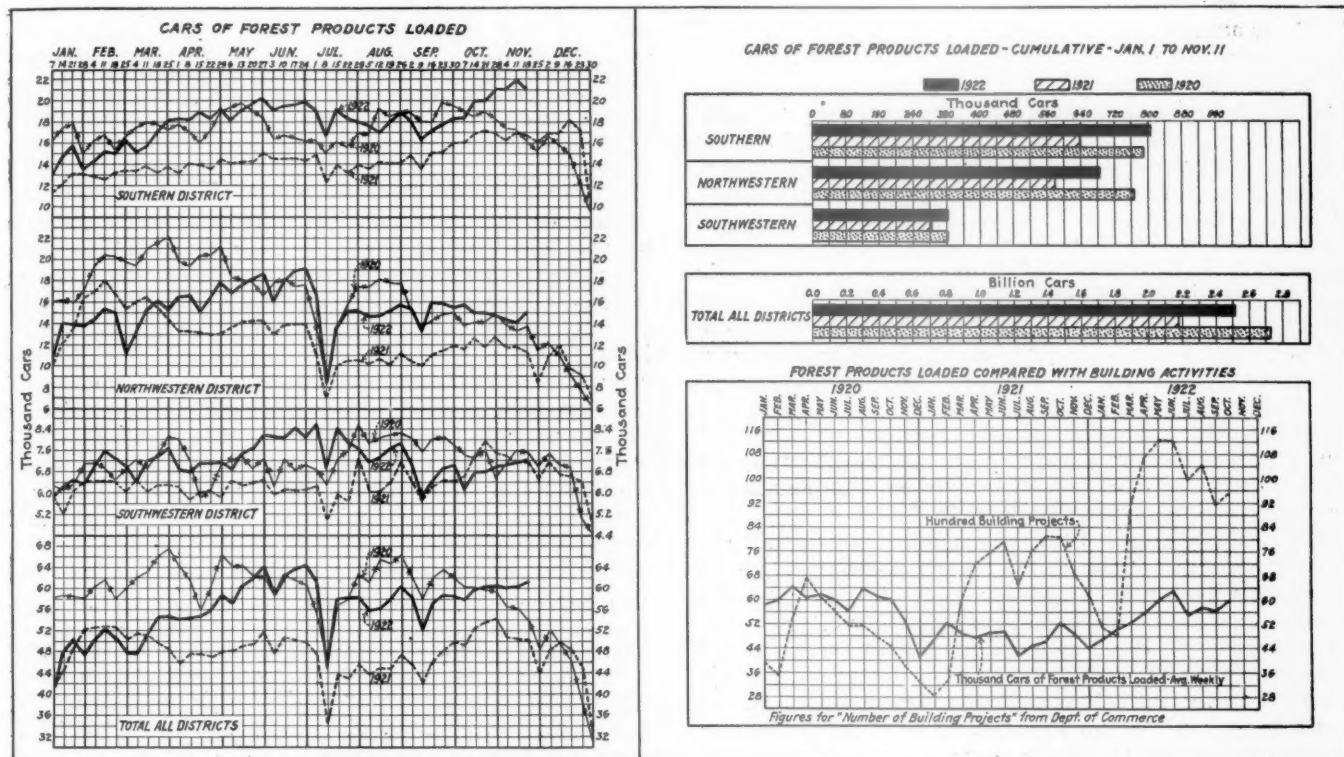
SUMMARY—ALL DISTRICTS, COMPARISON OF TOTALS THIS YEAR, LAST YEAR, TWO YEARS AGO. WEEK ENDED SATURDAY, DECEMBER 2ND, 1922.

										Total Revenue Freight Loaded		
Districts	Year	Grain and Grain Products	Live Stock	Coal	Coke	Forest Products	Ore	Mdse. L. C. L.	Miscellaneous	This Year, 1922	Corresponding Year, 1921	Corresponding Year, 1920
Eastern	1922	9,598	3,529	54,322	2,609	5,405	2,420	56,122	77,853	211,858	.....	.....
	1921	9,452	3,737	42,524	1,550	4,805	735	62,710	65,165	.....	190,678	219,249
Allegheny	1922	3,297	3,504	56,148	6,186	3,116	2,248	41,708	65,165	181,372	.....	.....
	1921	2,756	3,169	41,243	3,095	2,566	2,375	46,555	50,901	.....	152,680	191,674
Pocahontas	1922	192	101	18,241	614	1,425	107	4,979	3,067	28,726	.....	.....
	1921	233	106	12,906	158	1,197	1	5,859	3,214	.....	23,674	31,654
Southern	1922	3,368	2,299	22,757	1,217	20,753	1,367	33,513	39,156	124,430	.....	.....
	1921	3,041	2,046	15,083	483	16,329	450	37,301	34,229	.....	108,962	128,106
Northwestern	1922	15,927	9,670	9,243	1,887	14,687	1,552	23,015	33,421	109,402	.....	.....
	1921	13,629	9,176	8,369	796	10,883	279	27,361	25,894	.....	96,387	110,063
Central Western	1922	12,451	12,385	20,413	292	7,305	2,306	26,988	45,669	127,809	.....	.....
	1921	13,115	10,400	13,503	164	4,836	664	30,406	35,575	.....	108,663	131,436
Southwestern	1922	4,508	2,893	5,034	270	7,319	550	13,392	27,656	61,622	.....	.....
	1921	4,609	2,552	2,956	99	7,025	673	16,472	26,419	.....	60,805	70,422
Total Western Districts..	1922	32,886	24,948	34,690	2,449	29,311	4,408	63,395	106,746	298,833	.....	.....
	1921	31,353	22,128	24,828	1,059	22,744	1,616	74,239	87,888	.....	265,855	311,921
Total All Roads	1922	49,341	34,381	186,158	13,075	60,010	10,550	199,717	291,987	845,219	.....	.....
	1921	46,835	31,206	136,584	6,345	47,641	5,177	226,664	241,397	.....	741,849	.....
	1920	36,108	31,263	233,228	15,004	52,583	26,103	200,871	287,444	.....	.....	882,604
Increase compared	1921	2,506	3,175	49,574	6,730	12,369	5,373	.....	50,590	103,370	.....	.....
Decrease compared	1921	.....	.....	.....	.....	.....	.....	26,947	.....	.....	.....	.....
Increase compared	1920	13,233	3,118	.....	.....	7,427	.....	.....	4,543	.....	.....	.....
Decrease compared	1920	.....	.....	47,070	1,929	.....	15,553	1,154	.....	37,385	.....	.....
December 2nd	1922	49,341	34,381	186,158	13,075	60,010	10,550	199,717	291,987	845,219	741,849	882,604
November 25th	1922	54,790	40,217	202,032	13,234	66,046	15,052	228,771	335,353	955,495	673,465	803,701
November 18th	1922	55,204	40,735	205,024	12,431	61,403	32,780	228,922	332,595	969,094	790,363	889,138
November 11	1922	52,501	38,001	188,312	12,273	60,392	39,383	228,050	334,997	953,909	755,777	927,586
November 4th	1922	51,912	39,731	194,077	11,641	60,013	47,046	234,737	355,670	994,827	837,576	915,615

Compiled by the Car Service Division of the American Railway Association.

on November 1. Locomotives in need of heavy repairs totaled 15,120, an increase within 15 days of 19, while those in need of light repairs amounted to 3,236, which was a decrease of 29 within the same period. From November 1 to

November 15, the railroads turned out of their shops 12,139 locomotives. The number of serviceable locomotives totaled 46,101 on November 15 as compared with 46,096, which was the total on November 1.



Charts Prepared by Car Service Division, American Railway Association

Large Building Program Stimulates Movement of Forest Products

The charts indicate the trend in the loading of forest products by different districts in the country, together with the cumulative loading in the entire country—the latter contrasted with the building projects now being undertaken.

It will be noted that the loading of the forest products in the Southern district has, with slight exception, been greater than during the years 1920 and 1921. At the present time the loading in that region is far in excess of the two prior years.

The loading in the northwestern district has not kept the even trend as has been prevalent in the South, and while it now exceeds the loading for corresponding periods of the past two years, this district was slower in recovering, compared with other regions, from the period of acute deflation which affected the industry as a whole, during 1920 and 1921. There has been, however, a large water-borne traffic from mills in this territory, which would partially account for the larger relative decrease in carloading.

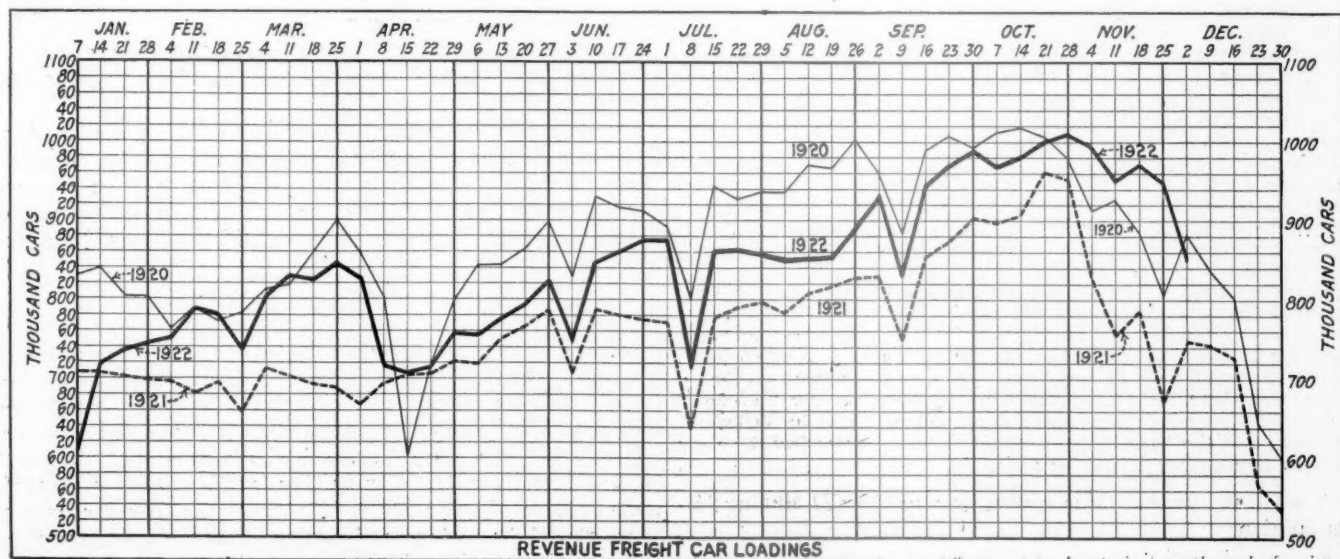
Loading in the southwestern territory has exceeded the loading for 1921, but during the fall period of car shortage, has been less than that of 1920.

The trend indicates that this section of the country is rapidly recovering however.

For all districts from January 1 to November 11, the loading during 1922 has exceeded the similar period of 1921, but still shows a decrease under the car-loadings during 1920. This is largely due to the fact that for the first five months of 1920 the lumber industry passed through one of the greatest periods of prosperity in its history, where orders far exceeded the ability of mills to cut or ship. The loadings during the first six months of 1920 greatly exceeded the last six months, whereas the reverse condition is generally true during 1922.

It will be noted that the loading of forest products is now on the upward trend, due, in part, to the very large building projects being undertaken which fact, coupled with the depletion of stock yards, should produce continued activity on the part of the milling industry.

For the 46 weeks of 1922, ending with the week of November 18th, the organized saw mill industry of the country shows a total of 10,159,212,045 board feet manufactured, 9,569,673,141 board feet shipped, and orders received for 10,200,834,464 board feet. For the entire year the industry, as a whole, has shipped in excess of 90 per cent of the footage manufactured.



Labor Board Removes Inequalities in Telegraphers' Pay

A DECISION, upholding the contentions of eleven of the largest western carriers as to the necessity for the eliminating of inequalities in the rates of pay of telegraphers and station employees, brought about through the application of an order of the Railroad Administration, was recently handed down by the Railroad Labor Board. The carriers involved, the Chicago & North Western, the Chicago, Burlington & Quincy, the Chicago, Milwaukee & St. Paul, the Chicago, Rock Island & Pacific, the Chicago, St. Paul, Minneapolis & Omaha, the Great Northern, the Illinois Central, the Minneapolis & St. Louis, the Minneapolis, St. Paul & Sault Ste. Marie, the Northern Pacific and the Southern Pacific (Pacific System), asked the Board for the right to correct inequalities produced by the application of Interpretation 8 to Supplement 13 to General Order 27, issued by the United States Railroad Administration. The Board decided that, effective January 1, 1923, "the inequalities * * * shall be eliminated by reducing the hourly rate of these employees an amount equivalent to the increase resulting from the application of Interpretation 8 to Supplement 13 to General Order 27."

The Labor Board, in discussing this dispute, pointed out that for some years prior to 1917 telegraphers employed by the carriers were paid a monthly salary to cover the full calendar days of the month, that is, 28, 30 or 31 days. In the latter part of 1917, telegraph employees in the service of these carriers received an increase in wages of approximately 12 per cent and in conjunction therewith the calendar month basis was changed to a working-day-month basis or 26 days, and thereafter the rate formerly applying for service performed on the calendar days of the month applied for the working days of the month and additional compensation was paid for service performed on other than working days, that is Sundays and holidays. Later the application of Supplement 13 to General Order 27 and its Interpretation 8 resulted was in some instances in the establishment of inequalities of the rates of pay of certain telegraph and station employees, which inequalities constituted the subject of this dispute. The Board's analysis of the case continues in part as follows:

The carriers state that the application of Interpretation 8 as directed by the Railroad Administration not only created an additional expenditure of over \$1,000,000 per annum but created a very disturbing and unsatisfactory situation; that agents, who previously received a substantial differential over telegraphers, are now receiving less than the telegraphers at a great many stations; and that telegraphers, who received rates in excess of other telegraphers working at the same stations, are receiving a lesser rate, notwithstanding the fact that the class of work and responsibility required are unchanged. It is stated that on some roads where, prior to Interpretation 8, there were 30 rates of pay, there are now 172 different rates of pay, and that on the lines represented in this controversy 11,008 employees received increases and 4,027 received no increases. The carriers contend that this has resulted in old experienced agents holding responsible positions taking assignments of less responsibility where rates of pay were increased under Interpretation 8, and agents of less experience accepting the more important stations, thereby impairing the efficiency of the service.

It is the contention of the carrier that the language of Supplement 13 clearly shows that it was never intended to include compensation for Sunday and holiday service where such service was paid for as overtime in establishing the hourly rate to which the increases provided for in Supplement 13 should be added; furthermore, that there is no decision of record issued by the Railroad Administration which provides that overtime should be included in computing the basic rate to which increases prescribed by the various supplements should be added.

The Board upheld these contentions specifically stating in its opinion:

The Labor Board finds that inequalities exist in the rates of

pay of employees in telegraph and station service which are unjustified and detrimental to the service. It appears that the employees who have benefited by the inequalities resulting from the application of Interpretation 8 have received the full amount of the increase provided for in the orders and decisions of the Railroad Administration and the Labor Board, and that the higher rates of pay accruing to them through the application of Interpretation 8 have resulted from the inclusion in the monthly rate used as the basis for computing the hourly rate under Supplement 13, compensation for service which was paid for additional as overtime. This does not appear to have been contemplated by any decision of the Railroad Administration increasing the rates of pay of any class of employees.

A. O. Wharton Files Dissenting Opinion

Again a dissenting opinion was appended to the decision by A. O. Wharton, member of the labor group on the Board, who quoted extensively from the employee's testimony at the hearing in this case, his contention being "that the question now decided adversely to the employees was one which had the personal attention of the Director-General of Railroads; that it was also approved by the Director, Division of Operation, both of whom were experienced railroad officials; and that prior to the decision being rendered the Director-General had received the benefit of the judgment of the Director of the Division of Operation, Railway Board of Adjustment No. 3, and the Board of Railroad Wages and Working Conditions."

Mr. Wharton added that:

The immediate effect of this decision—based on the figures submitted by the carriers—will reduce the annual earnings of these generally underpaid and highly skilled workers \$1,255,680 per annum. In Wage Series Report No. 3, issued by the Labor Board, October, 1921, the average wages per month for telegraphers, et cetera, are shown to be \$123.55 per month. The 11,008 directly affected will suffer an average reduction of \$114 per annum by this decision, and while it may be said that these employees, as a class, are today under the Board's wage reduction Decision No. 147, effective July 1, 1921, receiving a wage 82 per cent above the miserably low wage rates in effect prior to the period of federal control, the fact remains that they are generally underpaid.

The decision of the majority arbitrarily puts into effect differentials that were in effect during the year 1917, and every practical railroad man must admit that this decision will create a multitude of unjustifiable differentials in rates of pay, and that the existing dissatisfaction and discontent of these employees will be augmented by this impracticable decision, the only effect of which is to bring about another reduction in wages veiled by a thinly spread smoke screen which simply emphasizes the desire of the majority to deny the employees an opportunity to meet the respective carriers in conference and work out an equitable adjustment of any existing improper differentials.

W. L. McMenimen, member of the labor group on the Board, also appended a statement to the effect that while he voted against the decision he did not formally enter a dissenting opinion, adding, "as a rule dissenting opinions accomplish no practical purpose and merely encumber the record."

A resolution accompanying the decision proposed by Mr. McMenimen, and passed by the Board, ordered the retention upon its docket of various other applications from carriers for decreases and employees for increases in the wages of telegraphers. No action on these applications was, however, taken at this time.

GLANDS FIGURE, nowadays, in varied classes of news, front-page and other. The latest item is one concerning the endocrine gland of a woman who was injured by a switching locomotive of the Chicago & Alton, when it struck the automobile in which she was riding, and who is now suing the road in the Federal Court at Kansas City for \$50,000. It is charged that, because of an injury to this gland the lady has grown to weigh 375 lbs., a degree of obesity which is very oppressive, and a misfortune for which compensation ought to be made.

A National Transportation Institute Advocated

First Steps Taken to Create An Organization to Develop Fundamental Facts Regarding This Industry

THE FIRST STEPS toward the establishment of a National Transportation Institute "for the purpose of accumulating, organizing and furnishing the people at large full, complete, impartial and unbiased information about transportation" were taken at a dinner at the Hotel La Salle, Chicago, on December 8, when 150 agricultural, railway and business men unanimously endorsed the plan and appointed a committee of 19 men to act in conjunction with Congressman Sidney Anderson, chairman of the joint committee of Agricultural Inquiry, United States Congress, J. R. Howard, president of the American Farm Bureau Federation, and Bird M. Robinson, president of the American Short Line Railroad Association, who are the leading advocates of the institute.

Following the addresses of Mr. Anderson, Mr. Howard, D. B. Hutchings, director of transportation of the American Farm Bureau Federation, and Mr. Robinson, the meeting unanimously adopted a resolution approving the establishment of the institute and urging the agricultural, banking, commercial and transportation interests of the country to participate in its organization. The committee appointed to arrange for an organization committee and to participate in the formulation of plans to be submitted to a representative meeting to be called by them for the purpose of establishing a permanent organization included: H. I. Drummond, chairman of the Board of Governors of the International Farm Congress; M. D. Campbell, president of the National Milk Producers Association; John W. Blodgett, president of the National Lumber Manufacturer's Association; E. B. Polleys, president of the Western Pine Association; A. B. Johnson, president of the Railway Business Association; Irvin T. Bush, president of the Chamber of Commerce of the State of New York; W. R. Skinner, secretary and general manager of the National Dairy Association; J. A. Edgerton, president of the National Association of Manufacturers; George C. Conn, director of traffic of the Buick Motor Company; Ralph Van Vechton, vice president of the Continental & Commercial National Bank of Chicago; J. W. Kerscher, president of the National Wholesale Grocers' Association; W. H. Manns, assistant to the president of the International Harvester Company; Francis Kemper, National Retail Grocers' Association; J. L. Lovett, general manager of the Michigan Manufacturers' Association; Harrison F. Jones, executive secretary of the National Poultry, Butter and Egg Association; W. L. Wagner of G. M. H. Wagner & Sons Company, Chicago; H. A. Palmer, editor of the *Traffic World*; S. O. Dunn, editor of the *Railway Age*; and William Butterworth, president of Deere & Co.

A tentative plan for organization, as submitted by Mr. Robinson, provides for a board of governors, of 15 prominent citizens, headed by Edward E. Clark, former chairman of the Interstate Commerce Commission, to direct research work, and to present its findings to the public. A board of 35 directors is to be selected upon suggestions of the leading national agricultural, banking, industrial and transportation organizations, thereby insuring that the important business industries in the country who participate in the financial support of the institute shall have an opportunity to participate in the administration of the business and to present to the board of governors their special points of view for consideration. Staff officers are to be employed in each state, whose duty it will be to give to the public information that the investigations of the institute develops. The institute will supplement the work of its staff officers by educating

students in the fundamental principles of the various kinds of transportation, facts as to the present condition and the relative importance of each class of common carrier, the effect of present laws and regulations, and how the public and the carriers will be benefited or adversely affected by any attitude or action that may be taken with respect to their transportation problems.

It was estimated that during the research period, which will begin at once, the cost of maintaining the institute will be less than \$250,000 per year and later when the staff officers are employed the cost will increase to over \$1,000,000 per year. It is thought that when the institute becomes an active, educational one, it will receive a large number of students and the income from this source will aid in paying expenses, and that it possibly will become self supporting in the future.

The American farmer feels that a National Transportation Institute is highly desirable, according to Mr. Hutchings of the American Farm Bureau Federation. He stated that there are numerous problems now vexing the farmer in regard to transportation and that some responsible organization should be formed to sift the truth out of the present cloud of misinformation and malinformation. He declared that each should have full, accurate and unbiased information about the other's problems, what is being done to grapple with them, the methods being used and the success which is being met. Mr. Hutchings called attention to the fact that the executive committee of the American Farm Bureau Federation, at its meeting in June, 1922, adopted a resolution endorsing the movement and that it has since heartily supported it. The American farmer believes that such an organization as the National Transportation Institute would be extremely valuable, and that it should be set to work as soon as possible in order that it may help to cope with the problems now pressing for immediate solution.

The address of Mr. Robinson further pointed out the need for accurate transportation information and sketched a plan for the organization of a National Transportation Institute, including its research work and personnel. He declared that the magnitude of the problem and the work to be done is stupendous, and urged that the men present at the meeting join in the selection of men for a strong organization committee. In conclusion, Mr. Robinson appealed to his audience to join at once in an active, aggressive campaign to inform the public as to the facts of the present rail situation and what must be done to save the nation's transportation system.

Congressman Anderson Advocates Institute

Mr. Anderson urged the creation of a National Transportation Institute to establish sound public policies with respect to transportation and to create appropriate relations between industry, agriculture and transportation. He said in part:

"It has been my observation in the contacts which I have had during the past one and one-half years with almost every important industry in the country, that most of our troubles rise from a lack of understanding of the other fellow's problem and the relation which it has to our own. This meeting is an auspicious indication that we are coming to a realization of this fact.

"I assume that my presence here may be ascribed to the fact that I had the honor to be chairman of the Joint Com-

mission of Agricultural Inquiry, created by Congress in June, 1921. The resolution which created this commission was a very broad one; charging the commission with ascertaining among other things, the causes of the agricultural crisis of 1920; the reasons for the spread between the consumers' and purchasers' prices; the comparative condition of other industries; the adequacy of the credit, transportation, marketing and distributing machinery of the country. It was apparent from the outset that there was no hope of accumulating the basis of fact upon which sound conclusions could be predicated by the usual methods of congressional investigation. As I saw it, therefore, the job was one of organizing new agencies through which a basis of organized and correlated information could be obtained.

"Without going into detail as to the method of organizing the committees and organization which co-operated with them, I may say that altogether we established more than 200 committees and a co-ordinating organization of approximately 3,000 people. This organization included the best men and most constructive thinkers we were able to get in the fields of agriculture, industry, distribution and transportation. In the transportation organization alone, were comprised 115 committees and 200 sub-committees, and a co-ordinating organization of about 1,600 people. We sent out more than 200,000 questionnaires, asked more than 25 million questions, and made, or had made for us, more than 50 million mathematical calculations. I think I may say, after a year spent in this investigation, that the startling fact about transportation, as well as distributive economics, is not what we know, about the agencies and functions of transportation and distribution, but what we do *not* know.

"It is true that there is a considerable amount of data touching physical property and operation of railroads and other transportation agencies, but this data has not been organized with a view of bringing it together in such form as would make possible a sound judgment as to the relations of various factors of physical property and operation, and the drawing of sound conclusions from them.

"Transportation is a public function; it is not an end in itself, but a means to an end. It should be an efficient instrument in the conduct and development of the nation's agriculture, industry and commerce. It can continue to function under private management only if when so functioning it best serves the economic interests of the country.

"I have no personal interest in railroads or in other transportation agencies, but I have seen the economic relation of transportation and industry too thoroughly demonstrated, not to appreciate the fact that the problems of transportation are not merely transportation problems, but are problems in which the agriculture, industry and commerce of the nation are vitally interested. Transportation service and the cost of transportation service, in considerable measure, determine the location and prosperity of industry and agriculture. Transportation rates are as potent a force in determining this location and prosperity as taxes, and in many respects operate like taxes.

"The ability of the transportation agencies largely measures the amount of business that can be done by the country. We have concentrated our attention largely, heretofore, upon the operative and financial problems of transportation. The time has come when some attention must be given to the relationship of different forms of transportation to each other, and to the economic effects of transportation service or the lack of it, and transportation rates.

"There should be an agency representing the economic interests of the country, capable of accumulating the basis of fact upon which the economic effects of rates may be determined. Transportation costs on the whole are a far smaller element in consumers' prices than is generally supposed. It is probable that transportation costs less than wholesale distribution, and that the total cost of retail distri-

bution in the United States is four or five times as great as the total cost of transportation. No accurate determination of the economic effects of transportation rates as to commodities or industries, can be obtained, except on the basis of more detailed information than is at present available.

"Retail associations, wholesale associations and associations of manufacturers, are beginning to realize that the cost of distribution has outrun the cost of production and manufacture; they are setting up agencies for study of the processes of distribution, and for the dissemination of sound principles upon which more effective and efficient methods of distribution can be predicated. If it is worth while for these agencies to undertake to inform themselves and the public in regard to their own business, is it not worth while for these agencies to combine to ascertain their relationship to transportation and the economic effects upon them and upon the country, of transportation rates and service?

"If the problems connected with transportation and distribution were not so practical; if they did not touch industry so closely; if they were not a part of the daily operating factors of every industry; if, in other words, they were more obscure and scientific, we would promptly recognize the necessity of securing a basis of fact from which sound conclusions could be reached.

"When a new bug appears in the country, departments of agriculture and scientific institutions study its life history from the cradle to the grave. If it is worth while to spend millions of public and private funds, in the accumulation and organization of information touching the obscure hazards of agriculture and industry, is it not worth while to set up an agency capable of accumulating and organizing the information touching transportation and its relations to the industry, agriculture and commerce, which so closely touch the prosperity and economic well being, not only of these agencies, but of the whole mass of population?

"Transportation more than any other agency or instrumentality of commerce, is dependent upon sound and favorable public sentiment, yet it is a fact which I think no one will question, that no industry has been at less pains to create favorable public opinion than railroad transportation. Railroads formerly spent millions in securing the adoption of sound public policies by national and state legislative bodies, and in defending these policies and their operating methods and performance before courts and commissions, only to find that these millions had been spent largely in vain, because they have not been supported by adequate public knowledge and favorable public opinion.

"The point I am trying to make is that those interested in the establishment of sound transportation policies, and who recognize relationship of transportation efficiency and service to the progress and prosperity of the nation, cannot expect that politicians or statesmen will be able to overturn public sentiment by unfavorable propaganda in the hectic excitement of a four or five weeks' political campaign. The men in public life who recognize the importance of transportation agencies, and the necessity of sound public policies with respect thereto, have a right to expect that agencies will be created by the industries interested in transportation to accumulate the facts and disseminate the information which will create favorable public opinion touching these policies.

"I know of no idea which has greater potentialities for the establishment of sound public policies with respect to transportation; the creation of appropriate relationships between industry, agriculture and transportation, and for the dissemination of the information which is essential to favorable public opinion, than the idea which is responsible for the proposal to create a National Transportation Institute."

Further efforts to enlist support for the institute will be made at a dinner to be held in New York City on January 18, 1923.

Great Need of Salesmanship in Transportation

"Day Is Approaching When Every Man Who Sells Railroad Tickets Must Be a Salesman, Not a Mere Ticket Clerk"

By C. A. Cairns

Passenger Traffic Manager, Chicago & North Western

THE BACKBONE of an organization like yours is the men who, through many years of experience and travel, have acquired an intimate and specialized knowledge of passenger traffic. Men who make the most of every opportunity to improve the service and who are entitled to be classed as representing the highest art of salesmanship in transportation.

Every time I go into a ticket office and hear the wide range of questions to be answered, it increases the admiration I have always had for the men behind the counter.

Rightly handled, you gentlemen all know his is no easy task. He has a real man's job for, if he is an expert in his profession, he must be a walking encyclopedia of information about travel matters all over and all around the world.

In commercial lines prices often vary for articles which correspond to a large extent and which contrast furnishes the salesman with strong talking points, but generally speaking, railroad fares are the same, likewise the train service via the several routes between principal competitive points, and it accordingly requires expert salesmanship to convince a prospective buyer why he should use one particular route in preference to another.

Some of you may have read an interesting article which appeared several months ago of a plan inaugurated by a certain line for greater salesmanship in its ticket offices. The article went on to say that their ticket men had quit being "Clerks," having acquired the title of "Salesmen" and were being required to live up to the new designation.

In considering the sales possibility, this company grouped prospectives into three classes:

FIRST: Those entirely sold when they enter the office.

SECOND: Those partly sold upon entry and requiring salesmanship in closing.

THIRD: Those shopping around yet susceptible of being sold.

With a view to finding out how much or how little salesmanship was being used in its offices, the company required each ticket clerk to keep a tally over a period of ten days of the number of prospective travelers who called. A comparison of the total prospects with the ticket sales showed a most disheartening situation. The clerks were not it appeared salesmen. They were courteous but did not make sales as often as they should. As a result, a contest was started with two or three prizes as rewards and there was at once a surprising jump in the number of sales in proportion to the number of prospects.

Commenting upon the sales methods of railroads, a former railroad man has this to say in a recent magazine of nation wide circulation: "The business of transportation is like every other business in that it has something to sell. That 'something' is transportation—transportation of goods or persons.

"Few, very few railroads, really *sell* transportation. Almost invariably it is *bought*. People do not go into the office of a railroad and buy a ticket or ship a car of livestock in anything like the frame of mind with which they enter a cigar or a man's furnishing store or a grocery. To all intents and purposes, the transactions are identical. They

involve the exchange of money for goods or service, and a man from Mars might suppose that the methods of procedure would not differ. But they do. The cigar man or the haberdasher or the grocer is keen to make a sale. If what he first offers the prospective purchaser is not to the latter's liking, he offers something else. He points out its good qualities, anticipates criticism and objections, smiles, pleads, urges—in short, he *sells*.

"The railroad representative does not do any of these things. He is not curt or impertinent, but seldom does he give the man who does business with him the impression that his patronage is appreciated. It is, I suppose, in the nature of the business—a 'holdover' from the days when railroads were monopolies. They are not that today."

In view of the result of the investigation of sales conditions previously referred to and in light of this criticism, whether justified or not, have we not here food for thought of possible improvement in our sales methods.

Examples of Good Salesmanship

I was an interested spectator a short time ago at the Information Bureau in a ticket office not a thousand miles away from Savannah. A gentleman came in to make inquiry about service to California. He had in his hand a telegram which made it impossible to determine until he received a reply to same, whether he could start on a Thursday or Friday. He was given the desired information as to fares, service, etc., courteously and correctly by the young man at the counter, who proved to be a *poor* salesman, however, for when he finished answering the inquiries put up to him without volunteering any helpful suggestions of his own, the man started to leave the office. Fortunately, as he hesitated for a moment he was taken in hand by another employee who knew the art of salesmanship and he advanced the idea that it would be well for him to make his arrangements then and there for the day on which he was most likely to go, as by doing so he would be able to get a far better berth location than if he waited and if he found he had made a bad guess with respect to the date, he could bring back the tickets and they would be cheerfully exchanged to meet his requirements. The idea struck him favorably and as a result two tickets were sold to Los Angeles. You will agree the latter evidenced good salesmanship. Both had the same opportunity; one let his slip away, while the other applied good sales methods and secured the business as well as doing the purchaser a real service.

Expert salesmanship is well illustrated in a talk I had a few days ago with a representative of an important tourist agency. A lady came into their office inquiring for information about the Catskills. After a short preliminary talk he inquired if she would accept a suggestion from him as to her vacation plans. She replied that she would be very glad to do so, but that he must keep in mind two essentials—she had only a certain amount of money to spend and a given time to be away from her business. Beyond these limitations she was open-minded. It so happened that his company was interested in a tour to the Bermuda Islands, and seizing the opportunity, he began to tell her of the advantages of an exhilarating sea voyage and expatiated glowingly upon a country she had never seen. In short, he succeeded

* From an address before the American Association of Railroad Ticket Agents, Savannah, Georgia, November 13, 1922.

in a limited time in changing her from the Catskill to the Bermudas, and upon her return she called to tell him how satisfactory her vacation had been. This is simply illustrative of what can be done when proper salesmanship is applied and which efficiency all of our offices must aim to develop.

Salesmen Should Be More Carefully Employed

Recently I was deeply interested in a little pamphlet issued by one of the largest business organizations in the world and which gave an outline of the examination a salesman was required to submit to before his application would be given consideration for employment. As I read it the thought occurred, do we display the care we should in selecting our salesmen and might not the railroads follow with profit some such systematic pre-employment plan, for there is no doubt but that there are many men in ticket offices who have small ability for this important work and who, regardless of training, do not seem to develop into expert salesmen of transportation.

"I can sell three tickets to Joe's one," said a first-class ticket salesman to me a short time ago, and he could by actual count. There was not a circular in the office which did not bear his thumb marks of study and the contents of which he was not familiar with, nor was there a ticket in the case which he could not find as readily as a Scotchman can repeat the Catechism, while his co-worker floated along as easily as he could, having to ask someone else for detailed information in connection with practically every transaction other than that of a strictly local character.

You have all heard the story of the Hebrew who went into a ticket office and asked for a ticket to Springfield, and upon being asked by the polite salesman to which Springfield he desired to go—Springfield, O., Springfield, Mass., or Springfield, Mo., promptly replied, "Give me the cheapest." Unfortunately, this same kind of indifference is now and then noticed in some ticket offices—the easiest methods being employed to get by with, instead of a desire to raise the standard of service, but fortunately such offices are rare exceptions to the general rule.

May we now offer some thoughts which, if developed and worked out, might help solve some of the difficult ticket office problems that are encountered from day to day?

Sometime ago we had an analysis made of our ticket sales and were somewhat surprised to find that approximately 25 per cent of the total passenger revenue of the Chicago & North Western Railway Company was collected in our Chicago offices. When you consider that our total passenger revenue has run as high as \$45,000,000 a year, you will appreciate how important it is that we have the right kind of salesmanship in these large offices.

First of all, it takes time and money to make an efficient ticket salesman and on account of the knowledge being largely technical and absorbed only after years of close study and application, frequent changes in the personnel of the office should be avoided and the salary should be made attractive to insure reasonable permanency.

And when changes are necessary, is enough time devoted to the direct tutelage of the new beginner? Are we not too prone to let him shift for himself rather than to put him through a course of study in ticket office problems that he may be educated to become a real salesman. He should be introduced to the tariffs—to the inside of them particularly—not to the outside cover only and furthermore that he absorbs the contents.

Study of Tariffs Needed

Tariffs are necessarily more or less complicated, but much of the mystery that surrounds them can be eliminated by a careful study of the parts that interest a particular office.

It is to be regretted that many ticket clerks make no com-

prehensive study of tariffs and do not think of looking at anything but the outside covers until someone is at the counter inquiring for information which they contain. There is then a wild scramble to find the information desired—haste often results in mistakes being made—not to mention delay in waiting upon the passenger, thus causing him to leave the office in an irritated mood with a very poor impression of its efficiency. As a matter of fact, the passenger gets the first and strongest impression of the character of the railroad he is patronizing from the manner in which he is served at the ticket counter, and if this service is not prompt, helpful and courteous, it is apt to discolor everything that follows.

Many of us have seen ticket clerks in busy offices do unnecessary work pasting together several pieces of tickets to make up a complete one when, if they had been acquainted with their stock, they would have found a printed form that would have served them all this trouble besides avoiding delay in waiting on the purchaser.

The railroads spend thousands of dollars each year in publishing booklets, exploiting different localities. These are eagerly read by the prospective traveler, but can the same always be said of the man behind the counter who is supposed to be an encyclopedia of information on subjects of travel?

Is it not frequently found that the prospective passenger knows more about what he wants than the man who is attempting to serve him? Some employees will tell you there is not time for study during office hours. This may be true to a certain extent, but there are times during the early and latter part of the day especially when a salesman so disposed can usually find time and furthermore should consider it his duty to read and digest every piece of travel literature that comes into the office, for that is part of his duties.

To illustrate this point, a friend of mine had occasion quite recently to call at a large city ticket office shortly after the opening hour and it happened at that particular time there was not a prospective passenger in the office. He desired some information about an eastern resort and evidently did not get much satisfaction. "Was any one of the six or seven men behind the counter studying the tariffs or reading something of use in connection with their work? No, they were not," he said with emphasis. "They were standing around in pairs, apparently discussing the relative merits of the Yankees and White Sox—all very well in its way, but this does not go very far towards giving satisfactory service to patrons, nor in increasing the size of their pay checks."

A feature of good salesmanship is to have the ticket forces kept familiar with the advertisements your company may be running in daily papers or national mediums of publicity, that they may post themselves on inquiries they are likely to have in connection therewith, and thus be prepared to answer same promptly.

The prompt and accurate handling of sleeping car matters is one of the most important features of good salesmanship in a well organized office and should have close inspection and supervision by the agent himself. An ideal condition in larger offices is to have this important position filled by a man who has had traveling experience and who knows the necessity for prompt and discriminating work. This is especially true when dealing with foreign line ticket agents who frequently control routings from promptness in replies and the satisfactory character of answers received.

A rapid firing and most important sales assistant is the telephone and every one in this room will agree with me that this service should also have close personal supervision. "A soft answer turneth away wrath." If you want to see how quickly your competitor will get the business away from you, put a grouch on this job. He is a twin brother of Delay and both go hand in hand in opening up the floodgates of complaints and consequent loss of traffic.

Work of Information Bureau

An Information Bureau is an indispensable help to good salesmanship if properly organized and harnessed up with the ticket organization. I think you will agree with me that no folder, booklet or other literature should be handed out without polite inquiry being made as to whether the recipient has a trip in view, and if favorable reply is received, opportunity is then afforded to volunteer further assistance in planning an itinerary. If a memorandum is taken of the name, address and telephone number and handed to the soliciting agent, experience proves excellent returns may be expected from such follow-up methods. Unfortunately both of these angles of salesmanship are frequently neglected.

Is enough attention being given by your association to the study and investigation of methods or mechanical appliances that will assist in the reduction of work and at the same time promote the efficiency of the office? Can cash registers be used to advantage in some ticket offices, by simplifying the making of change and methods of accounting, thus giving more time for the counter and adding to the efficiency of the sales force?

In the building of new terminals or in the installation of new city ticket offices, are you men who may be interested in same volunteering ideas and suggestions in connection with their constructions and operation that are based upon practical experience in the successful and rapid handling of traffic?

Has a committee from your organization investigated and passed judgment upon the merits of the so-called double-deck and also wicket counters for city ticket offices which came into existence during the railroad administration, the former being used in the Consolidated Offices at Washington and Cincinnati, and the latter at Denver, Detroit and San Francisco? Are transactions with the purchaser face to face better than the somewhat usual practice of making up tickets on a separate desk some distance removed from the counter with your back towards same so as to avoid interruptions and possible mistakes as a result therefrom?

Noting as you do from day to day the use and abuse of folders, is it not possible for your organization to take this subject in hand and after investigation, offer suggestions as to economies that might be practiced in supplies or improvements made in the make-up or in the distribution of same? Likewise would not the voice of your association be helpful in sounding a note against waste in various other forms of circulars and advertising matter of questionable value, with which your offices are now flooded and much of the information duplicated?

Could not a committee from your association with profit make a study of the simplification of tariffs and give the benefit of its finding from the viewpoint of the transportation salesman as well as the public, to those charged with the issuance of same?

The day is approaching when every man who sells railroad tickets will be required to be a salesman, not a mere clerk from whom tickets can be bought, as our critic has put it, and to know as much about the transportation goods he is selling as the expert clothing merchant does about his. When that day arrives the classification, "ticket clerk," will vanish from the payroll and "transportation salesman" will take its place.

THE EXECUTIVE BOARD of the Great Lakes-St. Lawrence Waterway Association adopted a resolution at its meeting on December 11, challenging the railroads of the United States to meet with the association and define their stand on the ocean-lakes waterway project. The resolution states that the railways have asked the public for fair treatment and an impartial attitude, and asks in return that the lines respond to a similar appeal from proponents of the deep waterways.

Annual Report of the Bureau of Safety

THE INTERSTATE COMMERCE COMMISSION has issued, in a pamphlet of 43 pages, the report of W. P. Borland, chief of the Bureau of Safety, for the fiscal year ended June 30, 1922. This is a supplement to the annual report of the Commission, which was noticed in the *Railway Age* of December 9, which notice included a paragraph devoted to the principal points in Mr. Borland's report. Other features are here noted.

The number of freight cars inspected during the year under review was 1,046,964, of which 4.35 per cent were found defective; passenger cars inspected, 26,116, percentage defective, 0.97; locomotives inspected, 23,590, per cent defective, 2.40. The usual comparisons are given, with data under this head, for preceding years. More cars and locomotives were inspected than in 1920 and the record also discloses a gratifying decrease in the number found to be defective. Of all the defects found, 65 per cent are in connection with the air brake and hand brake mechanism, and among these, cut-out air brakes are prominent. The report calls attention to the duty of reducing this percentage of brakes cut out. Inspections during the past year have disclosed cars on which the hand brakes were unsatisfactory because of too long brake shafts; and in numerous instances it has been noted that sill steps on freight cars were not properly located under the ladders.

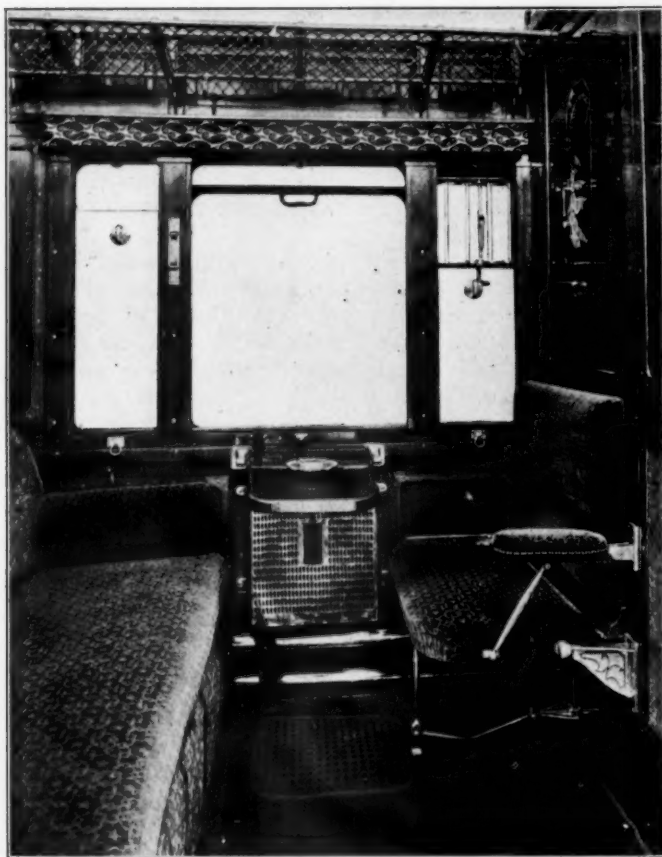
During the shopmen's strike in July, August and September, there was a large increase in the number of cars with defective safety appliances, and totals are given comparing the different months of the year.

The report of hours of service, covering cases where the regulations of the law were not strictly complied with show 31,682 instances of excess service, which is less than half the number reported in the year preceding. Of the 31,682 cases, 9,940 had to do with telegraphers in continuously operated offices; cases where the operators worked longer than nine hours; and there were 659 cases in daytime offices where the operators were on duty longer than 13 hours. The total number of instances of excess service of all classes has progressively decreased, each year, since 1918; due, it is believed, partly to light traffic conditions and also in a good degree to increased effort on the part of the roads to better observe the law.

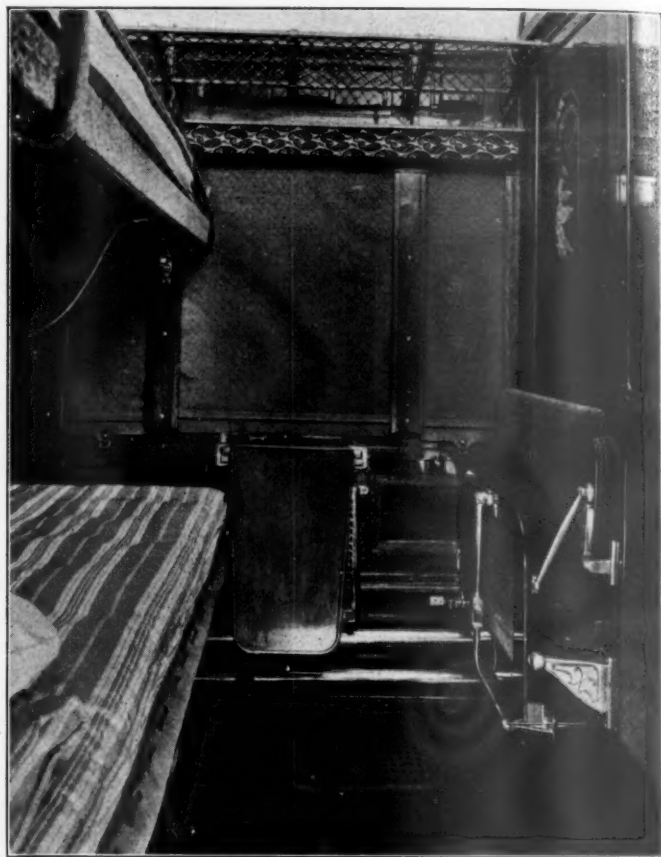
Inspectors have noticed an increasing tendency on the part of many roads to resort to the practice of temporarily releasing trainmen for short periods under circumstances where no rest could be secured, thus violating the intent and spirit of the law.

The inspections of cars and locomotives are reported in tabular form, in detail, as usual; and in the performance of their exacting duties the inspectors are credited with having displayed "marked ability, meriting special commendation."

IN THE COUNTY COURT at Pittsburgh, Pa., the Pennsylvania Railroad has recovered a verdict of \$106 in a suit against C. J. Ramsburg for damage to a gate, a shanty and other property when the defendant, disregarding the signals when he approached a crossing, near Dixmont early in the morning one day in December, 1921, broke the gate and was struck by eastbound passenger train No. 8. Mr. Ramsburg's automobile was wrecked, but he himself escaped. There was some snow flying in the air, but the locomotive bell was ringing and evidently the jurymen believed the railroad's statement that the driver had approached the crossing in a reckless manner. On February 11 of this year, Mr. Ramsburg brought a suit against the road for \$2,500, the value of his automobile; and on April 15, the railroad brought the suit which has just been decided. Mr. Ramsburg's suit has not yet come to trial.



Double Compartment, Looking Outward



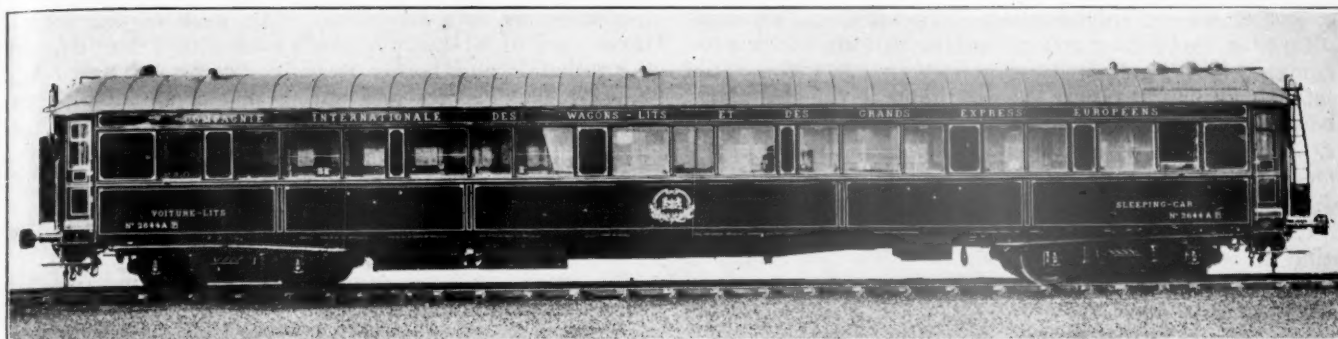
Compartment with Two Berths



Double Compartment, Looking Toward Corridor



View Along the Corridor



All-Steel European Sleeping Car Built by Leeds Forge Company, Ltd.

New Cars for International Sleeping Car Company

Leeds Forge Company Build 40 Steel Cars of Interesting Design,
Handsome Appearance and Increased Comfort.

THE CARS of the International Sleeping Car Company (Compagnie Internationale des Wagons-Lits et des Grands Express Européens) are operated over many different railroads in France, Belgium, Germany, Austria and other European countries. Owing to the different requirements of the various lines in regard to couplers, brake systems, heating systems, signals, lamp brackets and other details and the fact that the runs are frequently long and cross the borders of several countries, the design of the cars necessarily is a much more complicated matter than would be the case were they to be operated only in a limited area.

The Leeds Forge Company, Ltd., of Leeds, England, are now completing the delivery of 40 new cars to the International Company. These are the first all-steel sleeping cars to be used in Europe and the longest and heaviest coaches ever built in England. In general appearance, beauty of interior finish and arrangements for the comfort of the passengers these cars are particularly noteworthy.

General Arrangement

The cars have been designed to carry 16 passengers in eight one-place compartments and four two-place compartments, six of the one-place compartments being provided with communicating doors capable of being locked from either side. The seats turn over to form the bed, the bedding being secured to the underside of the seat in dust-proof containers. The seat back of the two-place compartment is arranged to lift to a horizontal position to form an upper berth, being supported by pull-out brackets fixed to the body side and corridor partition and by safety straps suspended from the ceiling. The two-place compartments are each also provided with a tip-up seat at the window side and opposite to the main seat, a folding table being fixed to the body side between.

In the first six cars, which were for use on the Peninsula and Orient Bombay Express service of the Paris, Lyons and Mediterranean between Calais and Marseilles, the two-place compartments were fitted with corner wash basin cabinets instead of dressing rooms as provided in the remaining 34. These dressing rooms, of which there are two, are arranged one between each two-place compartment and are provided with locks operating simultaneously on the doors leading to each compartment. A porcelain wash bowl is fitted, both hot and cold water being provided, also mirrors, decanters, drinking glasses, brush boxes, towel rails and soiled towel baskets. The window to the dressing room in the corridor partition is of obscured glass of St. Gobian pattern. The interior of the

dressing room is finished in white enamel, all metallic fittings being silver-plated.

Each single compartment is provided with a wash basin cabinet, the basin, which is of the tip-up type, being white-metal, silver-plated, as is also the casing. Hot and cold water are available at each basin. A hinged table forms the front of this portion of the cabinet. The upper portion of the cabinet forms a cupboard for the decanters and drinking glasses and the lower portion contains the chamber utensils.

The leading dimensions and weights of these cars are given in an accompanying table.

Construction of the Body

The structure of the body is entirely of steel, being built on jigs in units comprising full length compartment side, full length corridor side, body ends, platform ends, full length roof and canopies, thus insuring complete interchangeability

DIMENSIONS AND WEIGHTS		
Dimensions:		
Length over buffers.....	23.452 m.	76 ft. 11 $\frac{3}{4}$ in.
Length over endsills.....	21.940 m.	71 ft. 11 $\frac{3}{4}$ in.
Distance between truck centers....	16.000 m.	52 ft. 6 in.
Truck wheelbase.....	2.500 m.	8 ft. 2 $\frac{3}{4}$ in.
Diameter of wheels.....	1.040 m.	3 ft. 4 $\frac{1}{2}$ in.
Journals.....	130mm by 280mm.	5 $\frac{1}{4}$ in. by 11 in.
Height, rail to top of roof.....	4.000 m.	13 ft. 1 $\frac{1}{2}$ in.
Maximum Height.....	4.024 m.	13 ft. 2 $\frac{3}{4}$ in.
Height, rail to center of buffers....	1.050 m.	3 ft. 5 $\frac{3}{8}$ in.
Maximum width.....	2.875 m.	9 ft. 5 $\frac{3}{8}$ in.
Weights:		
In running order.....	54 English tons	121,000 lb.
Per axle.....	13 $\frac{1}{4}$ English tons	30,250 lb.
Truck.....		15,230 lb.

as well as ease of production. These units, which largely consist of pressings and rolled sections, all made to templates, are readily assembled whole on the underframe, leaving the shell ready for the interior finish. To insure absence of vibration and drumming, the steel work has been covered on the inside with canvas and insulation from heat and cold has been provided. Free air circulation between the outer skin and inner finish is also arranged for the prevention of condensation.

The sides are constructed of $\frac{1}{8}$ -in. pressed steel side-posts of varying sections connected longitudinally at the base to rolled angles, which rest on the underframe, on the outside to a heavy belt-rail molding, and on the inside to a bulb section; at the top the posts are connected by two angle side-plates. The sides below the belt-rail are sheathed with $\frac{1}{8}$ -

in. steel plates of a special quality. The sheathing above the belt-rail is of $\frac{1}{8}$ -in. plate, pressed in to form the window openings, four windows being pressed in one piece. Steel moldings are used to cover the butt joints of the side-plates, the whole side being riveted together with rivets counter-sunk on the outside to give a clean appearance to the exterior. The sides thus become deep girders capable of supporting the whole of the superstructure.

The roof is a departure from the former clerestory type, being elliptical. It is constructed of rolled angle carlines riveted to upper partition plates, the latter extending down to the side-plate level across the compartments and shaped to suit the ceiling at the corridor, the angles carrying the ceilings being riveted to either side. These upper partitions are connected longitudinally by angle upper side-plates and by angle purlins, the whole being sheathed by $\frac{1}{16}$ -in. roof plates lined with canvas to prevent drumming.

The compartment partitions of $\frac{1}{16}$ -in. steel plate with angle framing are riveted to the underframe, body side and roof and upper partitions thus effectively preventing side swaying with resultant creaking of the woodwork. To the underframes and partitions is fixed a steel flooring on which is secured the wood partitions and floor covering.

The vestibule end is built up of $\frac{1}{8}$ -in. pressed steel channel section posts and cross rails, sheathed on the exterior with $\frac{1}{8}$ -in. plates and on the interior with $\frac{1}{16}$ -in. plates with steel cover moldings. Incorporated with the vestibule ends are cupboards for ice and wine, utensils and coal, with linen cupboards in the ceiling—all of steel—the cool wine cupboard being insulated with asbestos and zinc lined.

The vestibule is provided with two doorways at the sides, a door to the corridor and a communicating door to the next coach through the collapsible vestibule. These doors are of teak.

Underframes

The underframes are of unusual design and consist of a small number of parts, this result being obtained by the use of large steel castings for the ends of the frames. These castings were supplied in a machined condition by the Commonwealth Steel Company, St. Louis, Mo., to the designs of the Leeds Forge Company. Although somewhat similar castings have been used for some time on heavy coaches in America, this is the first occasion on which they have been used in conjunction with side buffers. The castings dispense with a large number of individual parts which would be necessary with the type of buffing and drawgear adopted for these cars. Tail pieces extend from the end castings towards the center of the car in such a manner as to give a thoroughly strong connection with the remainder of the frame. The cast steel construction for the ends of the underframes give great resistance in the event of a collision.

The central portion of the frame consists of a fish-bellied girder built up of two web plates. The depth of this main girder at center of frame is 2 ft. 3 in. and at the part connecting to the end casting 10 in.

The four main crossbearers extend from side to side of the car passing through slots in the web plates of the center girder, other pressed crossbearers and floorbearers being built into the frame.

The side frames are made of rolled Z-sections connected firmly to the tail pieces of the end castings and arranged to form landings for the bottom angles of the body sides.

The buffing gear is of the equalizing type, the ends of the buffer shanks being fitted with shoes bearing on large laminated springs and connected by equalizing bars.

Trucks

The truck frame consists of one steel casting of which the pedestals, bolster suspension brackets, brake hanger brackets, etc., are cast to form integral parts, thus reducing the num-

ber of pieces to a minimum. The wear of pin holes is taken care of by the insertion of hard steel bushings and the pedestals and bolster wearing surfaces are faced with liners. The bolsters and spring planks are also of cast steel, having been manufactured, together with the frames, by the Commonwealth Steel Company. The trucks are of the equalizing beam type with double elliptic and helical springs, designed to obtain the easiest possible riding.

Interior Finish

The floors are covered with felt, cork-lino and carpet in the compartments and with cork, linoleum and carpet in the corridors. Bronze handrails are fitted over the fixed windows in the corridor, straps and handrails are provided to enable the dropping windows to be used as a means of exit in an emergency. In the corridor are also boxes for literature, notice frames, thermometer, candle lamps and cupboards for soiled linen and spare parts.

A seat and bed for the conductor or porter is fixed at one end of the corridor. The lavatories are situated one at each end, one being provided with a water closet and tip-up wash basin, the other with a water closet only, all fittings for both being white-metal, silver-plated or polished. The ceilings are removable for access to the water tanks and piping. The lavatories are finished in white enamel, the floor composition being cement and white marble chippings.

A signal alarm apparatus is fitted, capable of being operated from each compartment and from both ends of the corridor, the alarm valve being situated in the vestibule. Each compartment has also a push-button which operates a semaphore fixed above the door in the corridor partition, the bell being at the conductor's end of the corridor. Ventilators of the torpedo extractor type are fitted to the roof, communicating to the corridor and lavatories.

The woodwork of the compartments and corridor is of polished mahogany, constructed in sections ready for fitting into position. The steel compartment partitions are covered on each side with a one-piece section while the corridor partition is made up of several sections. The portions of interior finish fixed to the body sides in the compartments and corridor are also made in sections of suitable size. The wash basin cabinets are each made as one unit, as are also the cupboards in the corridor. The dressing rooms consist of two units, ready for fixing in position, thus ensuring the minimum of time actually spent finishing the inside of the car where working space is limited.

The scheme of decoration for the woodwork of the compartments is inlaid veneered panels above the window sills and figured velvet panels below, that for the corridor being embossed leather above the window sills and plain leather and lincrusta below.

The ceilings are composed of impermeable millboard to which is secured a border pattern of Anaglypta, the whole painted white and secured in position with polished mahogany moldings. The roof steel upper partitions are also covered with a frame to which is secured impermeable millboard with a border corresponding to that on the ceilings and painted white, with polished mahogany securing moldings.

The seats which have comfortable, high backs are upholstered in figured velvet, the material being supplied by the Wagons-Lits Cie., to their own design, as are also the inlaid panels and embossed leather.

The double compartments are provided with three windows of the frameless, balanced type, two dropping to the full extent, the other dropping to the extent of a top glass louvre ventilator operated from inside or out. The single compartments are provided with two windows, one dropping full, the other to the ventilator. The corridor is provided with both dropping and fixed windows. All windows are fitted with roller curtains.

The exterior of the coach sides and ends are finished in royal-blue decorated with gold lining. The roof is painted black as is also the underframe. The vestibule interiors are finished to match teak. The outside lettering on the sides is of bronze.

Heating, Water and Lighting Systems

High and low pressure steam pipes pass through the underframes, the former having connections to a reducing valve placed in the body and the latter to the individual steam heaters.

There are two heating systems, one the usual through steam heating by means of serpentine radiators in the compartments and straight piping in the corridors, the other by hot-water circulation. For the latter a heating chamber is provided at one end of the corridor, in which is fixed a coal-fired boiler. Circulating pipes of copper are run from the boiler to a hot-water tank in the roof and from thence round both sides of the car. The hot-water tank is divided into two portions, the water in one portion being heated by radiation from the water in the other portion which is heated by the boiler, the water thus warmed being used for the wash basins. The cold-water tanks fixed in the roof are also provided for supplying the wash basins. These tanks are filled from connections at the side of coach on the side sills. All tanks and piping, other than for high pressure steam, are of copper.

The electric lighting installation is of the Dick system. The current is generated by a dynamo slung from the underframe and driven by a belt from a pulley attached to one of the axles, the current passing to a pair of battery boxes slung on the frames and thence to the switchboards. Each compartment has a triple electrolier, two bulbs of 27 volts each being used for lighting, a single light with blue globe being provided as a night light. In addition there are reading lamps situated at the head of each berth. The lavatories have each one light, the corridor four lights, the vestibules one each, and one is provided in the roof over and outside each platform entrance door. The switchboard and regulator are placed at the end of corridor near the conductor's bunk.

Brakes

As these cars are run over many railway systems, some of which use the vacuum and others a compressed air brake, it has been necessary to arrange the brake rigging for use with either system. When the cars are operated in trains having the vacuum system two 24-in. diameter cylinders operate a pair of brake shafts from which the power is transmitted to the brake shoes by suitable foundation brake rigging, and when the Westinghouse compressed air system is in use, the power is obtained from a 17-in. diameter brake cylinder. Furthermore, the vacuum brake is fitted with rapid action valves while the Westinghouse brake is fitted with a double pipe line so that the system may be either automatic or controlled.

The foundation brake rigging is necessarily somewhat complicated as the brakes must be applied by either the vacuum or the compressed air cylinders, or by the hand brake controlled by a wheel placed in the vestibule at one end of the car. The trucks are equipped with a clasp brake, the shoes being suspended only 2 in. below the center of the axle. All brake-rigging is elevated well above the track.

The appearance of the end of the car is complicated by the unusual number of hose connections required for the vacuum brake, the automatic and control pipes of the air brake and the high and low-pressure steam heat hose.

Delivery of the Finished Cars

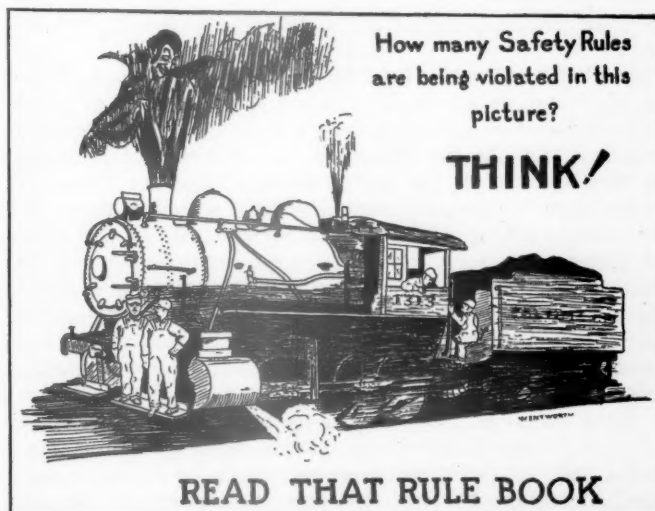
The question of transportation of the cars to the coast and then of the shipment to France was a difficult one as the cars were larger than allowed by the loading gages of Eng-

lish roads. To obviate the necessity of dismantling the cars for shipment and consequent re-erection on the continent, it was arranged with the railway companies concerned for the cars to travel to the port of shipment on their own wheels complete, excepting for the removal of a few parts of minor importance. Stations were passed at dead slow speeds as the clearances were practically nil.

Once at the port of embarkation it was highly desirable that the cars should be shipped without the necessity of slinging them onto the decks of the ship. Channel ferry-steamers had been built during the war for the purpose of carrying rolling stock to the continent, but the terminals for these boats were at Richborough and Southampton, however, and to neither of these ports could the cars be run conveniently, owing to their exceptionally large overall dimensions which would have necessitated alterations to the track in places, in order to avoid damage to the cars and to railway property. Negotiations were entered into with the Great Central for a new ferry-steamer terminal to be made on their line at Immingham, within 80 miles of the Leeds Forge Works, and with the Midland, which had charge of the transportation from the works at Newlay, Leeds, to Immingham port. The problem of the actual loading was settled by the provision of ramps over which the cars were run onto the tracks on the ferry-boat deck direct from the quay, an ingenious arrangement taking care of the rise and fall in the dock water-level, and thus preventing delay in loading. On the other side of the channel the delivery was made at Calais.

WORK ON THE MOFFAT TUNNEL of the Denver & Salt Lake has been delayed at least six months by a petition for a rehearing on the case involving the constitutionality of the Moffat Tunnel Act before the Colorado Supreme Court. The unanimous opinion of the State Supreme Court sustaining the Act was reported in the *Railway Age* of December 2.

A NEW TYPE OF PULLMAN CAR has been put in service on the Northwestern Limited of the Chicago & Northwestern operating between Chicago, Minneapolis and St. Paul. Permanent partitions extending from the side of the car half way across the backs of the seats provide greater privacy for the occupants of the berths during the daytime. The outer surface of the upper berths is flatter than usual, which gives the interior of the car an appearance of greater width. Other conveniences for the travelers, such as additional coat hooks in the upper berths and more easily operated berth lights, are also provided.



From Tyrone Division Safety Bulletin, Pennsylvania Railroad

An Improvement in Railroad Stoves

DURING THE PAST YEAR and particularly during the last few weeks, with the approach of cold weather, a number of railroads have evinced considerable interest in a recent development in stove design which appears to offer, at a small initial expense, the means of effecting substantial economies in the fuel consumed in stations, cabooses, engine-houses, pumping plants and other places employing coal stoves, and materially to reduce the danger from fire as well as to improve the service obtained from heating facilities at these points.

The development takes the form of a two-piece diaphragm which is supported in the upper part of the stove, one piece consisting of a semi-circular plate which extends horizontally across the fire compartment a few inches below the smoke flue and the other piece projecting from this place vertically to the top of the stove and occupying a position midway between the smoke flue and the front edge of the stove, in which position it leaves a space at each side for smoke and gases to pass from the stove to the flue.

The purpose of this arrangement is so to deflect the path of the flames as to keep them in direct contact with the sides of the stove, instead of allowing them to proceed directly up the center of the stove toward the flue under the influence of the draft. The principle underlying the construction is that by thus eliminating the air space between the flames

color at points where heavy paper would ordinarily have ignited in a short time.

The advantages claimed for the device are several. It appears that much less fuel is required to obtain a given amount of heat, or that more heat can be obtained for a given amount of fuel, or that it is possible to use a smaller stove for any installation designed to afford a specified amount of heat. It also appears that by reason of more perfect combustion less attention is required to keep up the heat and because of the more uniform heating of the metal, less trouble is encountered from cracking and buckling of the bowl or from the burning of grates. It is further advanced that because of more perfect combustion obtained by use of the device, as well as its ability to catch any soot arising during periods of imperfect combustion in the stove, soot troubles are largely eliminated, and finally it appears from the fact that the smoke flue does not become overheated under any condition of firing, a decided protection



The Pyropad Drum (at left) and Pyropad

and the stove, the maximum of heat produced by the combustion is transmitted to the room instead of passing up the stack.

That the device accomplishes the purpose for which it is designed is indicated by several observations made at demonstrations. When fired up with open drafts and with only a small amount of fuel in the fire pot, the stove assumes a cherry red much more quickly than the same stove fired up under similar conditions but not equipped with the device.

It is to be observed also that under any conditions of firing, the intensity of the heat is generally uniform over the sides of the stove, a condition unlike that usually encountered in which the fire pot is red hot and the remainder of the stove quite cool. It is also observed that the heat may be maintained over an unusually long period without replenishment of fuel and with comparatively few coals upon the grate; an observation brought out particularly well in the case of an 800-lb. cast iron roundhouse type stove in which a red heat was secured with Illinois bituminous coal with only a third of an ordinary size scuttle full of coal and maintained even when the grate could be seen through the coals. It has also been observed that a red hot condition of the stove is not accompanied by overheating of the flue, the Fire Underwriters' Laboratories, in fact, having conducted tests on the stove above mentioned in which it was found, among other things, that tissue paper wrapped around the stack experienced no more than a slight turning of



The Pyropad Roundhouse Stove

from danger of fire is afforded, since it is a well recognized fact that most fires from stoves arise from the overheating of the flue.

The development is called the Pyropad and is a product of the St. Louis Stove Company, St. Louis, Mo., which not only incorporates it in special types of stoves for railway service called the Pyropad stoves, but also manufactures Pyropad drums which may be adapted to stoves already in service. A number of railroads are now using the device or have it under test. Of these roads the Missouri Pacific recently made an interesting test of the roundhouse type of stove in sand drying in which the Pyropad stove is reported to have dried 50 per cent more sand with approximately 25 per cent less coal than other stoves in service fired under the same conditions.

Telegraph and Telephone Section Holds Meeting

The Use of Concrete Poles, Electrolysis, Message Traffic and the Adoption of Radio Discussed

THE SIXTH SESSION of the Telegraph and Telephone Section of the American Railway Association was held at the La Salle Hotel, Chicago, on December 12, 13 and 14, with an attendance of approximately 150 railroad members and 50 affiliated members. This was the annual meeting which had been scheduled to be held at Colorado Springs, Colo., on September 19, 20 and 21, but which was postponed because of the strike of the shop crafts employees, as many of the telegraph departments were affected by the strike. The strike caused a postponement of a number of committee meetings which prevented the completion of several reports for presentation at that time. The meeting was called to order by the Chairman W. H. Hall, general superintendent of telegraph, Missouri, Kansas & Texas lines, at 10 a. m. on Tuesday, December 12.

Talk Results, Says Mr. Aishton

R. H. Aishton, president of the American Railway Association, in addressing the meeting on Tuesday morning, said that the world was full of railroad saviors at Washington, and this could be expected as long as the feeling existed that the railroads were walking around on crutches. "There has been enough talk of the 'crime of 1918' and of the railroads breaking down. The railroad men themselves can do much to counteract such ideas," Mr. Aishton said, "by getting before the people the tremendous things the railroads are doing." There was never a greater necessity for this than at the present time. Mr. Aishton pointed out that the railroads have done a wonderful work during the past year in spite of the handicaps such as the thousands of idle cars and locomotives during the first part of the year followed by the coal strike, which upset the normal railroad service. This was followed by the shopmen's strike which started on July 1 leaving 18 per cent of the cars in the country in bad order, and on top of this there was a tremendous demand for transportation facilities during the fall. In spite of all these handicaps Mr. Aishton said that the car service division shows that during the first 46 weeks this year, which extended from January 1 to November 18 last, 2,161,522 cars were loaded with grain and grain products, which is the largest number of cars ever loaded with grain and grain products during a similar period in the history of the railroads. Compared with the same period last year this was an increase of 112,583 cars, or 5½ per cent. Loadings of all kinds during the 46 weeks' period this year exceeded the corresponding period in 1920 by 513,059 cars, or 31 per cent.

In speaking of the work done by the Telegraph and Telephone section, Mr. Aishton said it was necessary that all sections show that they are functioning properly. He felt, if the section had done nothing else, the Manual alone was well worth to the railroads all the money spent. He advised all the members continually to look into the future, as radio with all of its possibilities and telephone developments, etc., must be watched closely and the railroads kept informed so that greater economy and efficiency can be obtained. "Get hold of your general managers, presidents and even your subordinates, and tell them of the wonderful things the section has accomplished and the good results to be obtained through the adoption of recommended practices, and you will become one of the most important branches in the association." Mr. Aishton expressed his appreciation to Chairman Hall for the splendid cooperation, and also to

Mr. Hulatt for what he had done for the American railways while chairman of the section and he extended to him the best wishes of the American railways for his success in his future work abroad.

One pleasing feature of the meeting was a "Dinner to Dick" which constituted a personal farewell to H. Hulatt from the members of the T. & T. section. The dinner was held on Wednesday evening and was featured with music and songs. Mr. Hulatt was chairman of the section in 1921 and has resigned as manager of telegraphs of the Grand Trunk System to engage in other business in England.

Outside Plant—Construction and Maintenance

In view of the increasing cost of wooden pole lines the report of Sub-committee A of Committee 1, including an outline of a proposed specification on the construction and maintenance of wood pole lines is of interest. The finished portion of the specification establishes definitions of all terms used in this work and includes 22 drawings of proposed layouts and standards.

Concrete telegraph poles were used on the Panama Railroad in 1856 and numerous test installations have been made both in Europe and the United States, the most important being on the Pennsylvania and the Baltimore & Ohio. More recent designs have increased the strength and reduced the weight and material required. Sub-committee A-2 presented a complete specification for these reinforced concrete poles together with photographs and charts showing results of tests made. It is recommended that where permanency is of first importance, concrete poles offer a solution well worth experiment and development.

In May, Sub-committee A-3 decided that the American Engineering Standards Committee should be requested to include in its work specifications for telegraph and telephone cable. However, it was thought that specifications to be drafted by the Standards Committee would not be completed for some time. Therefore, as the Telegraph & Telephone section was desirous of securing specifications as quickly as possible, the committee proceeded at once to prepare an outline; and a sample portion of a proposed specification of paper-insulated lead-covered telegraph and telephone cable which was presented for discussion at the meeting.

By providing a kit of tools according to the lists prepared by Sub-committee A-4, the construction crews and linemen can be held accountable for first class work and a full outfit of equipment. A complete written agreement between the railroads and power companies crossing railroad pole lines with power lines is essential, therefore a new form of agreement was presented by Sub-committee B.

Where tile or fibre conduit is used for underground conduit systems crossing under tracks, at least 2 ft. 8 in. clearance between the top of the conduit protection and the base of the rail is required. If this clearance cannot be obtained it was recommended in the report of Sub-committee C that iron or mild steel conduit be used. Manholes, handholes and terminal poles where practicable, shall have a horizontal clearance of not less than 12 ft. from the nearest track rail. Drawings showing the recommended cross sectional area of conduit and concrete protections are included as a part of the specification.

On account of difficulties in transposing train dispatching circuits, such circuits should be kept in pin positions away

from long distance telephone circuits, according to the report of Sub-committee D—Transpositions, which included a specification covering the assignment of pin positions for phantom telegraph circuits. The end position on the top cross-arms and the lower cross-arms have a slight advantage in being somewhat less subject to cross talk and noise as compared with other pin positions. Transposition poles are to be marked by stenciled letters painted on the poles five feet from the ground.

Inside Plant—Construction and Maintenance

In order to establish standards for switchboard plugs, jacks and cords, Sub-committee B—Apparatus, Material and Tools, has prepared specifications on these three articles for the guidance of manufacturers. Where telegraph, telephone and interlocking equipment is to be housed in the same building, as in interlocking towers, it was recommended by Sub-committee H that the apparatus be located according to typical plans presented with the report and that full information on requirements be furnished from officers responsible for the construction and maintenance of all classes of this equipment.

Instructions for the use of bridge testing sets with variable ratio arms; a 28-page explanation on the theory of simultaneous telegraphy and telephony; and a set of instructions for the maintenance of polar relays were included in the report of Sub-committee J—Circuits and Current Supply.

Specifications for the installations and maintenance of stationary storage batteries, both the lead type and the nickel-iron-alkaline type were given in detail together with sketches in the report of Sub-committee K—Installation and Maintenance. Directions for the circuit cross connection records for wire chiefs and specifications for soldering were also included in the report of this sub-committee.

Message Traffic

A form was presented by Committee 6 for the recording of requests for, and the completion of, long distance telephone calls over railroad telephone circuits. It was recommended that each telegraph message be assigned a number, adding a dash and a suffix number to indicate the number of addressees when more than one person is to receive a copy. On private exchange telephone systems the limiting of the length of conversations to three minutes was recommended. On account of the continual changes in traffic it was not recommended that an "efficiency unit" be established for relay office performance.

Telegraph and Telephone Development

One road has developed a novel and convenient telephone switching device for use in towers and offices where there are numerous circuits to which the operator has occasion to connect his telephone. The "Superphone" is a new telephone invented by R. D. Duncan Jr., chief engineer of the Signal Corps Research Laboratory. This apparatus is said to provide a means for absolute secrecy of communication without possibility of being overheard or interrupted by any one else on that particular line. The system is an outgrowth of the "wired-wireless." The Northern Pacific has installed an extra push button at the long distance operator's position to operate the calling circuits, thereby preventing undesirable "ring backs."

The protector ground connection wire for lightning arresters should be either of copper, not smaller than No. 6. A.W.G. or galvanized steel strand. These wires, according to Committee No. 4, should follow the most direct practicable route and be free from splices, spirals and unnecessary sharp bends.

The most common causes for the electrical unbalances to ground on telephone circuits are the transposition irregularities and local leaks due to contact with limbs of trees

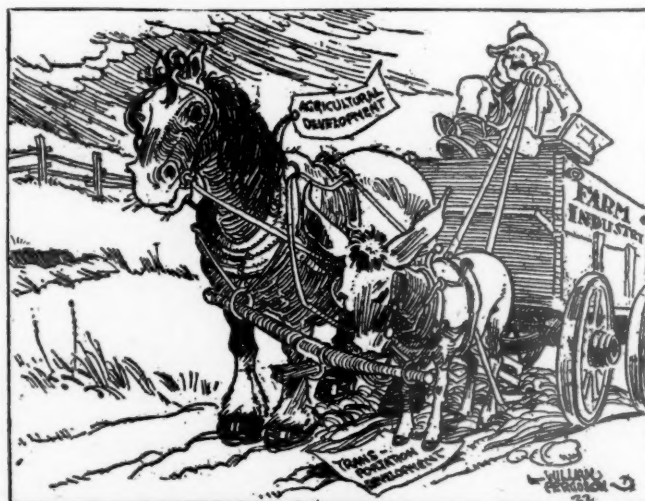
or loose joints in the wires. The elimination of such troubles and also the transposition of metallic circuits and cables was explained in the reports of Committee 7—Inductive Interference.

Efforts are continually being made to improve transmission by expensive changes in line circuits, switchboards and sub-station equipment. However, the results so accomplished are in many cases equivalent to only a few miles of standard cable, whereas by educating the users of the telephones to talk with the lips practically against the rim of the mouthpiece, additional saving can be made equivalent to many miles of standard cable, and at no expense. "Place the lips close to the mouthpiece and speak in a firm tone of voice" were the instructions recommended by Committee 11, and should be supplemented by a logical educational campaign to teach railroad employees of the more satisfactory service so easily obtained.

A paper on "Electrolysis Mitigation" together with photographs and a map was presented by Edward Entelman, superintendent of telegraph, Southern Pacific. The paper related several occurrences where cable sheath and pipe lines were damaged, the trouble being eliminated by insulating the pipe into sections and using drain connections. A form on which to record the enrollment, qualifications, employment, and progress in studies and advancement of employees was presented by the Committee on Education and Training of Telegraph and Telephone Employees. The first instruction pamphlets are to be for elementary mathematics and for elementary electricity. The books are to be of a pocket size so that a man can use them in the field.

Negotiations were under way with the manufacturers for the construction and tests of several radio sets applicable to railroad needs according to the report of Committee 12—Radio and Wire Carrier Systems. Radio sets for communication between the head and rear end of long freight trains or with nearby stations, using the conductors on adjacent pole lines in a carrier-current system were considered as of first importance. Short range sending and receiving sets to be used in case of pole lines being torn down or in case of accidents are also needed. Patent litigations are delaying progress on the developments of such equipment.

CANADIAN PACIFIC STEAMERS have brought to Montreal this past season 16,722 cabin passengers and have carried out 12,668 cabin and 8,565 third class passengers. These figures represent the passenger business of 59 steamship trips.



From the Daily Drovers' Telegram

An Unmatched Team

New York Railroad Club Celebrates Golden Jubilee

2,200 Attend Banquet Commemorating Club's Fiftieth Year—
More Public Relations Work Urged

THE NEW YORK RAILROAD CLUB celebrated its fiftieth anniversary on December 12 by a dinner at the Hotel Commodore, New York. About 2,200 attended. The speaker of the evening was Ex-Governor John J. Cornwell of West Virginia, now general counsel of the Baltimore & Ohio, who called attention to the growth of anti-railroad sentiment in the country and urged the roads to devote more time and money to their public relations work.

Other speakers were H. H. Vreeland, vice-president of the Interborough Consolidated Corporation, who was the toastmaster; George A. Post, chairman of the Railroad Committee of the Chamber of Commerce of the United States, and Daniel M. Brady, president of the Brady Brass Company, who was the only one present who had been a member of the club since its inception.

The three last named speakers devoted their remarks to reminiscences of the earlier days of the club, its accomplishments and to eulogizing those who by their devotion to the work of the club have made it a success.

H. H. Vreeland Reviews Club's History

"The New York Railroad Club," said Mr. Vreeland, "came into being about December 21, 1872, on which date what was perhaps its first regular meeting was held at 111 Liberty street, New York. Its inception, however, dates back to December 12 of that year in the beginning of what had for some time in the minds of men of affairs in the Master Car Builders' Association and to whom Leander Garey, affectionately remembered and honored to this day, was the leader, who was even then a veteran in railroad service and of whom the Hon. Chauncey M. Depew, our only honorary member, in an address given 25 years ago before this club, said, 'an able, industrious, energetic and conscientious railroad man,' and the organization of the New York Railroad Club with Mr. Garey as its first president, 'a happy omen of its permanent success'."

The club, which is now celebrating its golden anniversary, has at the present time 2,000 active members, Mr. Vreeland pointed out. These include men in all ranks of railroad service as well as representatives of the railway manufacturing and supply companies. There are now in this country

seven technical railroad clubs, he said, and two in Canada, all modeled after the New York Railroad Club which "is pleased to recognize them all as her own prosperous, successful and well-behaved children."

"It is of still further pride," Mr. Vreeland continued, "that upon our membership list will be found the names of W. J. Harahan, president of the Chesapeake & Ohio; James H. Hustis, president of the Boston & Maine; W. C. Besler, president of the Central Railroad of New Jersey; Elisha Lee, vice-president of the Pennsylvania System; Ralph Peters, president of the Long Island; W. H. Williams, vice-president of the Delaware & Hudson; Frank Hedley, president and general manager of the Interborough Rapid Transit Company; Dr. W. F. M. Goss, president of the Car Manufacturers Association; P. E. Crowley, vice-president of the New York Central; W. C. Thompson, general superintendent of rolling stock of the New York Central and secretary of the Traveling Engineers Association; W. K. Vanderbilt; Daniel R. MacBain, assistant general manager of the New York Central at Cleveland; Robert M. Lovett, chairman of the board of the Union Pacific; George W. Wildin, general manager of the Westinghouse Air Brake Company; Col. B. W. Dunn, chief of the Bureau of Explosives, who has done great work in the cause of safety in railroad travel and transportation of property, and many others so numerous that time will not permit of their individual mention. You will find that all or nearly all of those referred to are here tonight, the 'elder statesmen' being revered for their companionship and helpful co-operation."

Presentation of Cup to Retiring President

Another feature of the program of the evening was the presentation of a silver loving cup to John A. Droege, general superintendent of the New York, New Haven & Hartford, the retiring president of the club. Presentation was made by W. G. Besler, president of the Central of New Jersey. The evening's program was opened by F. T. Dickerson, secretary and treasurer of the Central of New Jersey, the new president of the club. Arthur N. Dugan, vice-president of the Bronze Metal Company, was chairman of the dinner committee in charge of all arrangements.

Mr. Cornwell's Address

With the end of the shopmen's strike, the railroads would have entered a more peaceful period, politically and so far as legislation and a demand for more stringent regulation go, had it not been for the unfortunate condition of the farmer.

This country cannot become really and truly prosperous, or if it has become prosperous it cannot long remain so, unless the farmer has his proper share of that prosperity. Beside being the food producer, the purchasing power of the farmer, in normal times, is almost as great as that of all the balance of the people. If the farmer is crippled or his purchasing power is impaired for long, the balance of the country and all other industries, including the railroads, will soon be affected.

The farmer's products have been deflated to a greater extent than those of anybody else, while he is competing, when he employs labor, with wages of other groups of employees that have not been deflated. The coal miner is getting the highest wage that was paid as a result of war conditions.

So, what are many farmers doing? Taking their boys and their girls out of college, and preparing to cultivate only the land they and the members of their family can till. They find it impossible to sell their farm products at prices which will let them out on the cost of production. And what else is the farmer doing?

He is getting in a bad temper, an ugly frame of mind. He looks around to see what is the matter and is told that the trouble is that the freight rate is so high to market that it eats up the profit and the crop. Naturally, a large percentage of them believe the statements. When a man is in hard luck in business it is not a difficult matter to convince him that he has not had a fair deal; that somebody has robbed him, and when a man has been robbed, or thinks he has, and a seemingly respectable man points out the robber, what is the man going to do? Is it not natural that he should go after the robber, real or supposed?

That is what the farmers seem to have thought they were doing in the recent election in some of the agricultural

states. They have been convinced that the railroads have unjust and exorbitant freight rates and they have prepared, not exactly to go after them, but like the old farmer I once knew was about going to church. He said he would either go or send. Those western farmers are sending. They have sent Mr. La Follette back with a record breaking majority. They have done the same with Mr. Johnson in California. They have elected the Non-partisan League, recalled governor, Mr. Frazer, from North Dakota, and they have commissioned Mr. Brookhart, of Iowa, to come to Washington with a brand new crop of ideas. That is all significant.

The next Congress will, in all probability, seek to do some very decisive things. Instead of putting teeth into the Transportation Act, as some of you railroad men have been talking, they are liable to cut the very gizzard out of it, if indeed it is not scrapped entirely. When these western farmers had the railroads pointed out as the malefactors in the recent campaign, the voters were reminded of all the malodorous things done by the railroads in the old days when rebating was a custom, when discrimination in favor of the big shipper as against the little one was popular and when the general business standards and morals were on a very different plane from what they are today.

Other Shippers Also Dissatisfied

The car shortage is making socialists, temporarily, out of a good many shippers of other classes of freight. That is particularly true of the coal operators. The non-union operators have made little complaint, I think, probably because they got theirs while the coal strike was on and not because they have any more patience or sympathy for the railroads in their troubles than the union operators. The latter, who had a 100 per cent strike for five months, who were able to shut up shop and eliminate all the expense possible by not attempting to run their mines, having sustained heavy losses during the strike, naturally now want to recoup—to get some of the money back, and they want an ample car supply. Some of them forget that the railroads were not allowed to make any huge profits during the war, out of which they might have purchased cars they did not need, for just such an emergency as we have been having; they forget that the railroads also had a strike and could not close down their plants, but had to keep operating, no matter what the sacrifice. They forget that the railroads are now attempting to handle a full year's supply of coal in a few months—that is, some of them do, and they are not only severe in their criticism, but—some of them—are standing around saying: "Well, if this is the best the railroads can do, I am for government ownership."

I suppose it would be a queer doctor who would come and diagnose a case and go away without prescribing a treatment, but I have no patent-medicine chest with me. I have no cock-sure scheme to cure any of the ills with which the body politic is afflicted. I do not know any way by which Mr. La Follette or Mr. Frazer or Colonel Brookhart can be brought to look through your spectacles.

It does, however, occur to me that there are some things the railroads, their officers and their employees can do right now that would be, or at least *might* be, helpful. Very briefly, I am going to tell you what they are. In doing so, I am giving you merely my personal opinions. They are not the opinions or impressions of a railroad man, of the general counsel of the Baltimore & Ohio, but rather the impressions of one who was but lately one of the general public and only a little while ago a public official who was having his troubles dealing with some very acute industrial disturbances.

Need for Vigorous Public Relations Campaign

I would put on a tremendous publicity campaign to put the facts as to the railroad situation before the country. I would tell the railroad story in every conceivable way and to everybody in the country. The railroads have not fallen

down as the people think and as the politicians and the demagogues have been telling them. You and I know that but the people don't know it generally. The country is simply outgrowing the transportation facilities just as the big railroad men of the country were predicting a score of years ago would be the case and why?

We know but the people don't know that it is chiefly because railroads have been over-regulated and over-restricted and limited in their operations and limited in their earnings until it really is a great tribute to the men who have been handling them to say that they are operating at the peak, as they have been the past two months and just following a strike.

Probably you are saying to yourselves the railroads already are doing that kind of publicity work. You are, in a way, but a great deal of it does not get anywhere. You are collecting and printing a lot of statistics and bulletins and sending them around to your own officers and employees and to the officers of other railroads. I get a lot of it. I read it, too, for I have not been in the game long enough to lose interest in the subject. But the public is not getting it.

Another thing: If there are any unfair rules or practices being engaged in, anywhere on the part of the railroads, they should be cut out, regardless of whether they are strictly permissible under the laws. The public does not understand that among the hundreds of agents and officers of a single system there are bound to be a few men, here and there, who will occasionally do things not exactly right and that are not in line with the policy of the management which may be trying ever so hard to be on the level. I sometimes wonder whether the executive officers are, themselves, always alive to those facts and whether they are just as alert and as careful to investigate and ascertain whether the under-officials, or all of them, are always playing the game square.

I got a training while a public official which did me a lot of good. I read vicious criticisms, soon after I took office, based upon misinformation, sometimes, I might properly say, gross ignorance of the law or of the facts, or both. A fine opportunity offered occasionally to soak a fellow and soak him hard, but the man who wielded the editorial pen would have the last word. He could keep on talking after I had stopped and gotten absorbed with something else, so, instead of writing him a nasty letter or giving out a statement to his competitor in which I sought to expose his ignorance, I wrote him a polite note and assured him of my confidence in his desire to be fair and accurate in his statements; that I thought he would be willing for me to point out to him that a slight error had crept in and that the facts were as follows. Rarely ever, indeed I can recall but one case, where that kind of letter did not meet a proper response and in at least three instances I made fast friends of influential newspaper editors who belonged to the opposite political party.

There Are Still Opportunities in the Railroad Business

And you young men: I assume most of you are in the railroad game for life. I do not entirely agree with the thought that because railroads are regulated and unduly hampered by governmental agencies that all opportunities for young men in the railroad profession are gone. Genius, energy, common sense, diplomacy, and keeping everlastingly at it will count today and will continue to count in the railroad world.

If the railroads can get through the period they are now approaching and if the coming Congress can be persuaded not to take away the only safeguards left and turn the forty-eight states loose on them to tear them into pieces and make them a patch work, then, with reasonable prosperity ahead for a few years, they will settle down into a more peaceful state and federal ownership will be avoided. But, it is going to take a fight to stave off those things and you should begin now, not wait until the thing is upon you.



Effect on Ton-Mile Cost of Reducing Train Loads

Illinois Central Tests for U. S. R. A. Show Greatest Economy with
Full Tonnage Freight Trains

DURING THE PAST 20 YEARS much attention has been given to the rating and loading of locomotives in freight service and it is recognized as one of the most important factors in keeping down the direct ton-mile cost of freight train operation. The most economical loading until recently has generally been considered as the maximum which the locomotive could handle over the ruling grades with a margin of capacity only large enough to prevent stalling under the most adverse conditions likely to be encountered. During this period there has been an increase in the revenue tons per train greater in proportion than the increase in the average tractive effort of the locomotives in freight service.

In the development of accurate tonnage ratings little attention has been given to the element of time, although in many cases it has been taken into account in the practical adjustment of ratings to meet the requirements of local conditions or traffic of special character. With the present character of train service wage agreements, however, the importance of the element of time has been materially increased. With the passage of the Adamson law in 1916, the trip unit was decreased from ten hours to eight hours and in 1919 punitive rates for overtime were established by the Railroad Administration.

Character of the Tests

During the early summer of 1919 a series of freight train tests were conducted on five divisions of the Illinois Central System under the direction of the United States Railroad Administration to determine the best combination of train load and corresponding practicable speed from the standpoint of economy in the two most affected direct costs, that is, fuel and crew wages. The combined effect of tonnage and speed was measured in ton-miles per train hour, in which the train load in tons and the speed in miles an hour are factors of equal weight, and the direct costs were computed on the gross ton-mileage basis. No account of these tests has been published previously, but the results are of fully as much general interest and value now as they were at the time the tests were conducted.

Tests were run on the Champaign district of the Illinois division, the Paducah district of the Kentucky division, the Fulton district of the Tennessee division, the McComb district of the Louisiana division and the Tallahatchie district of the Memphis division of the Yazoo & Mississippi Valley. The tests consisted in the observation of the performance of trains of regular make-up, without special equipment, some of which were given the regular loading in accordance with the tonnage ratings then in force and others of which were given a loading reduced considerably below the regular rating. The observations were made in May, 1919, under exceptionally favorable conditions and on each district were under the personal supervision of a traveling engineer who was given competent assistance in keeping all records accurately.

The coal consumption was arrived at by careful measurements on all districts with the exception of the Paducah district of the Kentucky division, where actual weights were used. Accurate records were made of the time in motion and of all delays. The tonnage hauled was arrived at by taking the scale weights from the way-bills for loaded cars and using the stenciled weights for empty cars.

On the Champaign district the observations were confined to northbound trains only, owing to the fact that the traffic on this district is unbalanced, with the heavy movement from the south. This is a double track district 130 miles long, and is divided into two sections for rating purposes, one 84 miles long with ruling grades of 31 ft. per mile and the other 46 miles long with ruling grades of 18 ft. per mile. The tests included 30 full tonnage trains and 9 reduced tonnage trains.

On the Paducah district of the Kentucky division the results of the operation of 25 full tonnage trains northbound were recorded. With the exception of 10 miles of double track, this is a single track district 99 miles long. It has two tonnage sections, one 58 miles long with ruling grades of 66 ft. per mile and the other 43 miles long with ruling grades of 26 ft. per mile. No reduced tonnage trains were operated on this district because, with its comparatively heavy grades and large number of trains, overtime is the

result of interference by other trains and is not due to slow running speeds.

The Fulton district of the Kentucky division, which is 128 miles long, is double tracked throughout and has ruling grades of 26 ft. per mile. On this district observations of 9 full tonnage and 32 reduced tonnage trains were recorded, the movements being about equally divided between north and south.

The McComb district of the Louisiana division is a double track district 96 miles long with ruling grades of 21 ft. per mile. It compares in a general way with the Fulton district except that it is 32 miles shorter. Records were kept of the performance of 7 full tonnage trains and 9 trains with reduced tonnage, operating in the direction of heavy traffic only.

The Tallahatchie district of the Memphis division is a single track line with the exception of 28 miles of double track and is 144 miles long northward and 145 miles long southward. This is a low grade line, the ruling grade not exceeding 13 ft. per mile southbound and 17 ft. per mile northbound. On this district the tests included 32 trains of full tonnage and 20 trains of reduced tonnage, in each case evenly divided between the two directions.

As has already been stated, only fuel and crew wages were taken into account in the test records and the results were computed to show the cost of each and the total cost per 1,000 gross ton-miles and per train hour with straight time overtime, and the total cost per 1,000 gross ton-miles and per train hour with time and one-half for overtime.

In addition to these direct expenses, however, enginehouse expense is also affected by any change in operating conditions which changes the number of train miles required to produce a given number of gross ton-miles. It is, therefore, necessary to add pro rata to the direct unit costs for the reduced tonnage trains, a proportion of the cost of handling an engine through a terminal equal to the per cent of the increase in the train miles. Furthermore, in cases where the traffic is not balanced any improvement in operating costs derived from the running of lighter trains will be effective in the direction of heavy traffic only, and the cost of fuel and wages as well as the additional enginehouse expense incidental to the balancing movement of the additional locomotives required in the direction of heavy traffic must be added pro rata to the direct unit costs in the heavy direction.

Lower Costs With Heavy Train Load

The effect of these additional items of cost on the relationship of total costs per 1,000 gross ton-miles with reduced tonnage to the total costs with full tonnage are included in Table I, in which is presented a brief summary of the results of the tests. This table shows that in every case where comparisons were made between full and reduced tonnage operation, the lower ton-mile costs, considering the additional items, were obtained with the heavier train loading.

The effect of the lighter train loading on the cost of balancing power is a practical consideration of general importance, since it is exceptional to find the ton-mile movement in opposing directions equalized for more than short periods at a time. This effect alone was sufficient to throw the advantage in favor of the heavy train loading in the only case where the reduction of tonnage effected a reduction in the fuel and wage costs.

Analysis by Districts

In Table II is shown the average performance and direct costs of operation of the full and reduced tonnage trains on each district. It will be observed that, with the exception of the Champaign district, in every case the reduction of the train load resulted in a decrease in the number of gross ton-miles per train hour and an increase in both the wage and fuel costs per 1,000 gross ton-miles.

On the Fulton district, with an average reduction in the train load of 6.5 per cent, there was an average increase in speed between terminals of 1.4 per cent, from 14.6 miles an hour to 14.8 miles an hour, while the average running speed increased from 17.6 miles an hour to 18.3 miles an hour, or 4 per cent. The average delays per trip increased from 1 hr. 26 min. to 1 hr. 47 min. The gross ton-miles per train hour decreased from 48,364 to 45,419, or 6.1 per cent, and the direct expense increased from \$.156 to \$.162 per 1,000 gross ton-miles, or 3.8 per cent. In this case the difference in the average total time between terminals for the full and reduced tonnage trains was so slight that a change from the

TABLE I—COMPARATIVE COSTS PER 1,000 GROSS TON-MILES OF FULL AND REDUCED TONNAGE TRAINS

	Champaign District Tons	Fulton District Tons	McComb District Tons	Tallahatchie District Tons
Train load—full tonnage.....	3,750	3,308	3,192	3,547
Train load—reduced tonnage.....	3,271	3,091	2,389	2,948
Per cent reduction.....	12.7	6.5	25.1	16.9
Cost per 1,000 gross ton-miles:				
(Pro-rata overtime)				
Full tonnage trains.....	\$.165	\$.156	\$.202	\$.161
Reduced tonnage trains.....	\$.150	\$.162	\$.228	\$.174
Reduced tonnage trains incl. cost of engines and crews returning light and additional enginehouse expense	\$.173	\$.174	\$.300	\$.209
Cost per 1,000 gross ton-miles:				
(Time and one-half O. T.)				
Full tonnage trains.....	\$.173	\$.156	\$.207	\$.167
Reduced tonnage trains.....	\$.151	\$.162	\$.229	\$.180
Reduced tonnage trains incl. cost of engines and crews returning light, and additional enginehouse expense	\$.174	\$.174	\$.301	\$.215
Per cent of increase in cost of reduced tonnage trains:				
Pro-rata O. T. ....Decr.	9.1	3.8	12.8	8.0
Pro-rata O. T. incl. cost in light direction and increase enginehouse expense	4.8	11.5	48.5	29.8
One and one-half overtime ..Decr.	12.7	3.8	10.6	7.7
One and one-half overtime incl. cost in light direction and increased enginehouse expense...	0.5	11.5	45.4	28.7

straight time to the one and one-half time overtime rate had no effect on the wage cost. The increase in wage cost alone was 6.7 per cent and in the fuel cost, 1.2 per cent.

On the McComb district the average train load of the light trains was 25.1 per cent less than the average load of the full tonnage trains. The average speed between terminals was increased from 10.6 miles an hour to 12.6 miles an hour, or 19 per cent, while the average speed in motion was increased from 13.6 miles an hour to 16.2 miles an hour, or 19.1 per cent. The average delayed time per trip was reduced from 1 hr. 56 min. to 1 hr. 37 min. The gross ton-miles per train hour decreased from 34,102 for the full tonnage trains to 30,361 for the reduced tonnage trains, or 11 per cent, and the total direct costs per 1,000 gross ton-miles increased from \$.2025 to \$.2280 on the straight time basis and from \$.207 to \$.229 on the punitive overtime basis, or 12.8 per cent and 10.6 per cent, respectively. On the straight time basis the increase in wage cost was 20.5 per cent, and the increase in fuel cost was 6.2 per cent.

The average reduction in the light trains on the Tallahatchie district, as compared with the full tonnage trains, was 16.9 per cent. The average speed between terminals increased from 11.4 miles an hour to 12 miles an hour, or 5.3 per cent, and the speed while in motion increased from 15 miles an hour to 16.5 miles an hour, or 10 per cent. There was a slight increase in the average delayed time per trip, which amounted to 3 hr. 5 min. for the heavy trains and 3 hr. 18 min. for the light trains. Gross ton-miles per train hour decreased from 40,144 to 35,075, or 12.6 per cent. The increase in direct ton-mile costs was 8 per cent

on the basis of straight time overtime and 7.7 per cent on the basis of one and one-half time overtime. For the heavy trains the total cost per 1,000 gross ton-miles was \$.1612 with straight time and \$.167 with time and one-half overtime, while the reduced tonnage trains averaged \$.174 and \$.18, respectively. On the straight time overtime basis the wage cost increased 14.7 per cent and the fuel cost .5 per cent.

The tests on the Champaign district were the only ones in which the reduction of tonnage was accompanied by an increase in gross ton-miles per train hour and a decrease in both the fuel and wage unit costs. Here, however, there was a marked decrease in the average delayed time for the reduced tonnage runs, amounting to slightly over one-half of the total reduction in time between terminals. On this district the average reduction in tonnage was 12.7 per cent. This was accompanied by an increase in the speed between terminals from 10.8 miles an hour to 13.4 miles an hour, or 24.1 per cent, and an increase in the average running speed from 15.8 miles an hour to 18.4 miles an hour, or 16.5 per cent. Delays were decreased from an average of 4 hr. 1 min. per trip to 2 hr. 41 min. per trip. The gross ton-miles per train hour increased from 39,201 to 43,468, or 10.9 per cent, while the total direct unit costs showed a decrease of 9.5 per cent from \$.1656 to \$.15 for straight time overtime and 12.7 per cent from \$.1735 to \$.151 for time and one-half overtime. Wages showed a unit decrease of 8.4 per cent on a straight time basis and fuel a decrease of 10.5 per cent.

When, however, the additional enginehouse expense incidental to the additional train movements required to take care of the 12.7 per cent reduction in average train load and the cost of returning the additional engines and crews in the direction of light traffic are taken into account, the ton-mile costs are in favor of the heavier train loading, even on this district. The net increase in the cost per 1,000 gross ton-miles of the reduced trains was 4.8 per cent with straight time rates and .5 per cent with one and one-half time overtime rates.

After taking into account these same additional items on the other districts, the unit costs of operating the reduced tonnage trains show increases on the straight time basis of

11.5 per cent, 48.5 per cent and 29.8 per cent, respectively, on the Fulton, McComb and Tallahatchie districts, and 11.5 per cent, 45.4 per cent and 28.7 per cent, respectively, with the one and over-half time rate for overtime, in comparison with the cost of operating the full tonnage trains.

Road Delays and Gross Car Weights

A fact of considerable interest disclosed by the averages in Table II is that there is no marked relation between the delayed time and the train load or speed except in the case of the Champaign district. An analysis of the individual runs also bears out this conclusion. On the Fulton district, for instance, the delays vary from less than one hour to 3½ hours per trip throughout the range of train loads up to about 3,400 tons, or 95 per cent of the full tonnage rating. For the trains which were heavier than this there seems to

TABLE III—AVERAGE GROSS CAR WEIGHTS

District	Tonnage trains	Reduced trains
Champaign	52 tons	46.7 tons
Fulton	57 tons	45.5 tons
McComb	37.1 tons	27.2 tons
Tallahatchie	40.3 tons	42.1 tons

be a tendency towards a higher average of delays, although the number of such trains for which data are available is not sufficient to establish this relationship conclusively. On the Tallahatchie district, a single track line, the trend of delays is constant throughout the entire range of train loads.

On the Champaign district, where the average delayed time showed a marked reduction for the reduced tonnage group, the variations in the amount of delays between trains in each group is so wide as to raise some doubt as to whether the relationship indicated by the averages would hold if more trains had been included in the light tonnage group.

Another variable condition which in a measure affects the direct comparability of the light and heavy train operation is the average weight per car. An examination of the relation of the average number of cars per train and the average train loads in Table II shows that with the exception of the Tallahatchie district, the car weights are favorable to

TABLE II—COMPARATIVE RESULTS OF OPERATING FULL AND REDUCED TONNAGE TRAINS ON FIVE DISTRICTS OF THE ILLINOIS CENTRAL SYSTEM

District	Champaign		Paducah		Fulton		McComb		Tallahatchie	
Length, miles	130		99		128		96		{ So. 145 No. 144	
Direction of tests.....	North		North		North and south		One direction		North and south	
Ruling grade, ft. per mile.....	31 and 26		66 and 26		26		21		{ So. 13 No. 17	
Line	Double track		Single track		Double track		Double track		Single track	
	Full load	Reduced load	Full load	Full load	Reduced load	Full load	Reduced load	Full load	Reduced load	
Number of trains.....	30	9	25	9	32	7	9	32	20	
Ratings, gross ton-miles.....	526,600	.....	236,700	457,832	.....	364,800	.....	{ So. 551,000 No. 547,200 }	.....
Ratings, gross ton-miles per train mile.	4,051	.....	2,401	3,577	.....	3,800	.....	3,800	.....
Average actual gross ton-miles.....	487,453	425,280	228,908	423,452	395,721	306,435	229,397	513,188	425,915	
Average train load, tons.....	3,750	3,271	2,314	3,308	3,091	3,192	2,389	3,547	2,948	
Per cent of rating hauled.....	92.5	80.8	96.6	92.5	84.0	84.0	62.9	93.3	77.5	
Gross ton-miles per train hour.....	39,202	43,468	27,299	48,364	45,419	34,102	30,361	40,144	35,075	
Average number of cars per train:										
Loads	69	65	50	55	59	62	33	67	51	
Empties	3	5	5	3	9	24	55	11	19	
Average time between terminals, hrs., min.	12-26	9-47	8-23	8-45	8-43	8-59	7-33	12-47	12-08	
Average delays, hrs., min.	4-01	2-41	2-32	1-26	1-47	1-56	1-37	3-05	3-18	
Average speed in motion, m.p.h.....	15.8	18.4	16.9	17.6	18.3	13.6	16.2	15.0	16.5	
Average speed between terminals, m.p.h.	10.8	13.4	11.8	14.6	14.8	10.6	12.7	11.4	12.0	
Costs per trip:										
Wages	\$41.77	\$33.41	\$26.80	\$31.13	\$31.03	\$27.73	\$25.09	\$43.41	\$41.57	
Fuel	\$38.95	\$30.25	\$24.83	\$34.95	\$33.09	\$34.32	\$27.29	\$39.32	\$33.17	
Total	\$80.73	\$63.66	\$51.63	\$66.08	\$64.12	\$62.05	\$52.38	\$82.73	\$74.74	
Lb. coal per 1,000 gross ton-miles.....	68.59	61.02	93.1	70.8	71.8	96.1	102.1	65.8	66.9	
Lb. coal per train hour.....	2,689	2,659	2,544	3,426	3,260	3,281	3,102	2,640	2,345	
Cost per 1,000 gross ton-miles:										
Wages	\$0.0857	\$0.0785	\$0.1170	\$0.0735	\$0.0784	\$0.0905	\$0.1090	\$0.0846	\$0.0970	
Fuel	\$0.0799	\$0.0715	\$0.1084	\$0.0825	\$0.0836	\$0.1120	\$0.1190	\$0.0766	\$0.0770	
Total	\$0.1656	\$0.1500	\$0.2254	\$0.1560	\$0.1620	\$0.2025	\$0.2280	\$0.1612	\$0.1740	
Cost per train hour:										
Wages	\$3.36	\$3.42	\$3.20	\$3.56	\$3.56	\$3.09	\$3.32	\$3.395	\$3.42	
Fuel	\$3.13	\$3.09	\$2.96	\$3.99	\$3.79	\$3.82	\$3.61	\$3.076	\$2.73	
Total	\$6.49	\$6.51	\$6.16	\$7.55	\$7.35	\$6.91	\$6.93	\$6.471	\$6.15	
Total cost with 1½ time overtime:										
Per 1,000 gross ton-miles.....	\$0.1735	\$0.151	\$0.231	\$0.156	\$0.162	\$0.207	\$0.229	\$0.167	\$0.18	
Per train hour.....	\$6.80	\$6.58	\$6.315	\$7.55	\$7.36	\$7.14	\$6.98	\$6.73	\$6.34	

the operation of the heavy trains in every case. The comparison is shown in Table III. Had the train load been expressed in terms of adjusted tons rather than actual tons, the effect of these differences in average car weights would have been to decrease the proportionate amount of the reduction shown in the average loading of the light trains on all except the Tallahatchie district, where the proportional reduction would have been increased. The most important effect of this difference in conditions is on ton-mile costs. An examination of the data for the individual runs on the Champaign district disclosed a well-defined tendency toward increasing ton-mile costs as the average car weights decreased throughout the whole range of train loads and speeds. Considering the individual trains, the relationship between this factor and ton-mile costs is more consistently observable than that of any other single condition directly affecting either the fuel or wage accounts.

In each case the lower average ton-mile costs were obtained with the higher average gross ton-miles per train hour. The relationship of train load to ton-miles per hour, however, is not at all clear and it is evident that under the test conditions the speed between terminals is not generally affected in a sufficiently marked degree by the tonnage reductions to increase the ton-miles per train hour. The road delays, which in the main are unaffected by reductions in the train load or by the average running speed, appear to be the controlling factor. In this connection it is pertinent to note that the test trains were run during a period when the gross ton-miles handled were from 15 per cent to 34 per cent below normal on the districts where the comparisons were made and that, in the opinion of the officers in charge, greater reductions would have been necessary under heavy traffic conditions in order to have secured the same effect on the average time between terminals.

Conclusions

The following are the conclusions of the Division of Operation of the Railroad Administration, based on the results of these tests:

(1) There is no general agreement as to the percentage of tonnage rating which will bring the lowest cost. In the majority of cases this is effected by a load of 100 per cent,

but in others the most economical load (considering the cost in one direction only) is about 85 per cent. Each division is governed by its own operating characteristics and no general law appears in the results before us in this study.

(2) The cost per ton-mile decreases as the gross car load increases, due probably to the lower train resistance per gross ton. * * *

(3) The cost per ton-mile increased with the delay on the road. This is illustrated well by the results on the Memphis division. With two hours delay, the cost per 1,000 gross ton-miles was 14.2 cents; at three hours it was 15.8 cents; at four hours it was 17.4 cents, and at five hours it was 19 cents.

(4) Up to a certain critical point the cost per ton-mile decreases as the ton-miles per train hour increases. The cost is stationary or rises slightly, as the ton-miles per train hour increase beyond that point. The critical point is reached only by trains running so far above the normal average speeds for trains of their weight that the increased fuel consumption offsets the saving in wages.

(5) There appears to be no distinct relation between the train load and the hours of delay on the road.

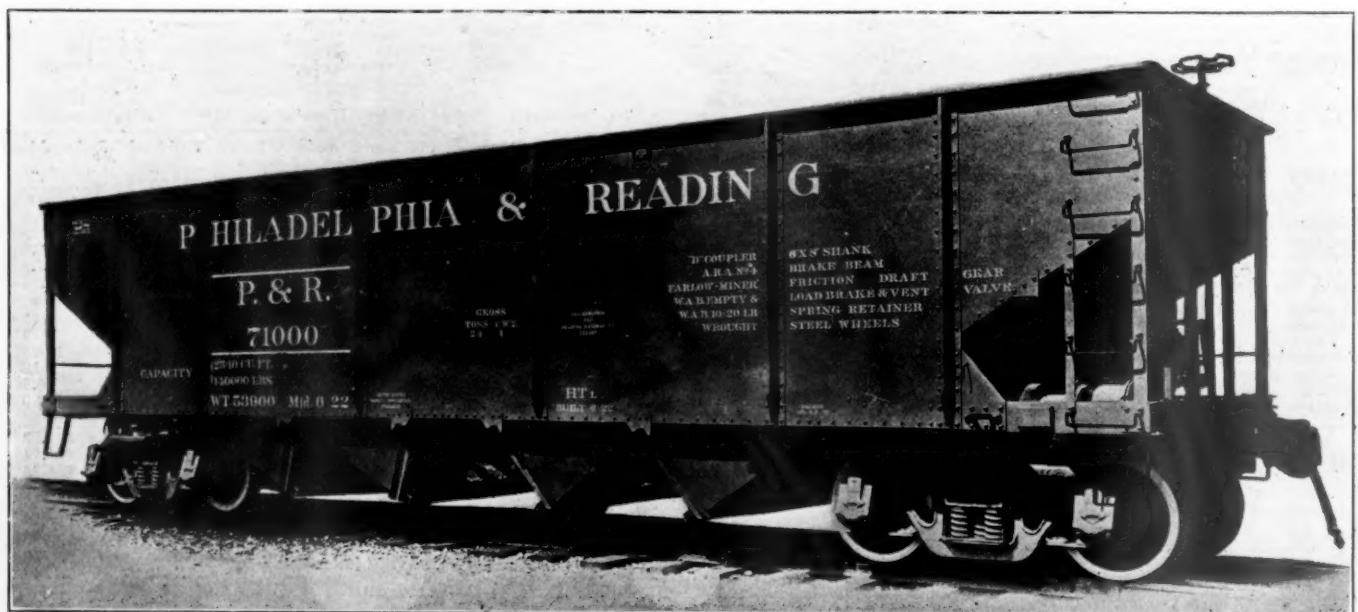
(6) The delay on the road apparently has more effect on the gross ton-miles per train hour than variations in speed while in motion. The element of road delay is probably the most important single factor in the equation.

The practical application to that road of the facts developed by the tests is summarized by the following general conclusions in the report of the Federal manager of the Illinois Central:

(1) It is not practicable to reduce the train load to avoid overtime because of the increased cost incident to the operation of the necessary additional trains in the direction of heavy traffic to handle the same tonnage and in the direction of light traffic to balance power.

(2) To a large extent the cost of handling the most economical train load includes considerable overtime.

(3) Increased cost resulting from overtime, like any other wage increase, must be met by increasing facilities instead of by reducing train load. This reduction, on a good many districts, would add train units in excess of present capacity.



One of the Philadelphia & Reading New Coal Cars

Two thousand of these cars have been delivered by the American Car & Foundry Company, Midvale Steel Company, Pressed Steel Car Company and Standard Steel Car Company. They have a capacity of 70 tons and are equipped with empty and load brake and vent valve.

President Discusses Transportation Problem

Proposes Abolition of Labor Board and Creation of a Labor Division of the I. C. C.

WASHINGTON, D. C.

WHILE PRESIDENT HARDING devoted a considerable part of his address to Congress on December 8 to a discussion of the railroad situation, referring to the problem of transportation as an outstanding one demanding the most rigorous consideration of Congress and the country and saying he knows of no problem exceeding it in importance, it is not understood that he was in any sense outlining a program of railroad legislation for immediate consideration. While he made several more or less definite suggestions, including one that the membership of the Interstate Commerce Commission be increased by four to constitute a labor division as a substitute for the Railroad Labor Board, and that power should be conferred either upon the present board or the suggested substitute to require its rulings to be accepted, no change has been indicated in the policy of the administration leaders recently expressed in the announcement by Chairman Cummins that he does not intend to press, although he may introduce, at the present session the bills he has at least tentatively prepared which would carry out some of the President's recommendations, and it is also understood that there has been no alteration of the President's determination not to call an extra session after March 4 if it can be avoided.

With this understanding, therefore, it is apparent that the address was intended mainly as a compliance with the constitutional duty of the President to lay before the Congress from time to time the state of affairs in the nation and that he was making a report to Congress and inviting its consideration of his reactions from his contact during the past year or so with the subject in connection with the controversies over rates, wages and car supply. The President finds much in need of improvement in the transportation situation and he has various ideas, derived from various sources, as to what should be done about it, but while he urged a "prompt enactment at the present session" of legislation for the relief of the farmers, he did not apply the same language to his suggestions regarding transportation and the administration forces are anticipating sufficient difficulty in obtaining action at this short session on even the present program of the Administration.

In his first address to Congress after his inauguration President Harding declared that railway rates and the cost of transportation must be reduced. He is still urgent that this be brought about but he has come to an appreciation that "rates horizontally increased, to meet increased wage outlays during the war inflation, are not easily reduced." When he refers to the "five per cent horizontal reduction" made last year it is understood that he has in mind the fact that the ten per cent horizontal reduction of July 1 did not apply to some rates that had previously been reduced and,

therefore, effected less than a ten per cent reduction in total freight revenues at the time, although it has usually been estimated at more than five per cent, and the total reduction from the high level established in Ex Parte 74 was more than ten per cent.

As to how to effect better and cheaper transportation the President is clear that "government operation does not afford the cure." He sees advantages to result from plans to co-ordinate all transportation facilities and agrees with most railway officers that the motor truck should be turned "into a railway feeder and distributor instead of a destroying competitor," but he wants the government to point the way to reduced freight costs and looks for "genius" among the railway managers to find new economies and new efficiencies in co-operation. The merger of lines into systems, which the Transportation Act invites but temporarily postpones pending the completion of an artificial plant, is suggested as one means, and the President apparently has been impressed with the proposals of Mr. Warfield, some of which found their way into the report of the Joint Commission of Agricultural Inquiry, in the direction of car pooling under a central agency, and the consolidation of facilities.

The President is strongly convinced that the strike is a weapon of organized labor that must be abandoned because its effects are felt more directly by the public than by the railroad companies but he attempts to balance his censure of those responsible for the shop strike by dividing the blame with "heedless forces of reaction" that "sought the pre-war levels" of wages, although the wage reductions that were followed by the strike, which he elsewhere characterizes as "very moderate," were ordered by the Labor Board.

The President introduced the subject of transportation in his address in connection with his recommendations for the relief of the farmer, whose difficulty, he said, has been accentuated by the railway strike. "Had we escaped the coal and railway strikes, which had no excuse for their beginning and less justification for their delayed settlement, we should have done infinitely better," he said. "But labor was insistent on holding to the war heights, and heedless forces of reaction sought the pre-war levels and both were wrong. In the folly of conflict our progress was hindered and the heavy cost has not yet been fully estimated. There can be neither adjustment nor the penalty of the failure to readjust in which all do not somehow participate."

Various measures are pending for the assistance of the farmer, the President said, and the best judgment of Congress ought to be expressed in prompt enactment at the present session, but "permanent and deserved agricultural good fortune depends on better and cheaper transportation." He then continued:

Text of the President's Address

Here is an outstanding problem, demanding the most rigorous consideration of the Congress and the country. It has to do with more than agriculture. It provides the channel for the flow of the country's commerce. But the farmer is particularly hard hit. His market, so affected by the world consumption, does not admit of the price adjustment to meet carrying charges. In the last half of the year now closing the railways, broken in carrying capacity because of motive power and rolling stock out of order, though insistently declaring to the contrary, embargoed his shipments or denied him cars when fortunate markets were calling. Too frequently transportation failed while perishable products were turning from possible profit to losses counted in tens of millions.

I know of no problem exceeding in importance this one of trans-

portation. In our complex and interdependent modern life transportation is essential to our very existence. Let us pass for the moment the menace in the possible paralysis of such service as we have and note the failure, for whatever reason, to expand our transportation to meet the Nation's needs.

The census of 1880 recorded a population of 50,000,000. In two decades more we may reasonably expect to count thrice that number. In the three decades ending in 1920 the country's freight by rail increased from 631,000,000 tons to 2,234,000,000 tons; that is to say, while our population was increasing less than 70 per cent, the freight movement increased over 250 per cent.

We have built 40 per cent of the world's railroad mileage, and yet find it inadequate to our present requirements. When we

contemplate the inadequacy of today it is easy to believe that the next few decades will witness the paralysis of our transportation-using social scheme or a complete reorganization on some new basis. Mindful of the tremendous costs of betterments, extensions, and expansions, and mindful of the staggering debts of the world today, the difficulty is magnified. Here is a problem demanding wide vision and the avoidance of mere makeshifts. No matter what the errors of the past, no matter how we acclaimed construction and then condemned operations in the past, we have the transportation and the honest investment in the transportation which sped us on to what we are, and we face conditions which reflect its inadequacy today, its greater inadequacy tomorrow, and we contemplate transportation costs which much of the traffic can not and will not continue to pay.

Manifestly, we have need to begin on plans to coordinate all transportation facilities. We should more effectively connect up our rail lines with our carriers by sea. We ought to reap some benefit from the hundreds of millions expended on inland waterways, proving our capacity to utilize as well as expend. We ought to turn the motor truck into a railway feeder and distributor instead of a destroying competitor.

A Motor Age

It would be folly to ignore that we live in a motor age. The motor car reflects our standard of living and gauges the speed of our present-day life. It long ago ran down simple living, and never halted to inquire about the prostrate figure which fell as its victim. With full recognition of motor-car transportation we must turn it to the most practical use. It can not supersede the railway lines, no matter how generously we afford it highways out of the public treasury. If freight traffic by motor were charged with its proper and proportionate share of highway construction, we should find much of it wasteful and more costly than like service by rail. Yet we have paralleled the railways, a most natural line of construction, and thereby taken away from the agency of expected service much of its profitable traffic, which the taxpayers have been providing the highways, whose cost of maintenance is not yet realized.

The federal government has a right to inquire into the wisdom of this policy, because the national treasury is contributing largely to this highway construction. Costly highways ought to be made to serve as feeders rather than competitors of the railroads, and the motor truck should become a co-ordinate factor in our great distributing system.

This transportation problem can not be waived aside. The demand for lowered costs on farm products and basic materials can not be ignored. Rates horizontally increased, to meet increased wage outlays during the war inflation, are not easily reduced. When some very moderate wage reductions were effected last summer there was a 5 per cent horizontal reduction in rates. I sought at that time, in a very informal way, to have the railway managers go before the Interstate Commerce Commission and agree to a heavier reduction on farm products and coal and other basic commodities, and leave unchanged the freight tariffs which a very large portion of the traffic was able to bear. Neither the managers nor the commission saw fit to adopt the suggestion, so we had the horizontal reduction too slight to be felt by the higher class cargoes and too little to benefit the heavy tonnage calling most loudly for relief.

Railways are not to be expected to render the most essential service in our social organization without a fair return on capital invested, but the government has gone so far in the regulation of rates and rules of operation that it has the responsibility of pointing the way to the reduced freight costs so essential to our national welfare.

Government operation does not afford the cure. It was government operation which brought us to the very order of things against which we now rebel, and we are still liquidating the costs of that supreme folly.

New Efficiencies in Co-operation Needed

Surely the genius of the railway builders has not become extinct among the railway managers. New economies, new efficiencies in co-operation must be found. The fact that labor takes 50 to 60 per cent of total railway earnings makes limitations within which to effect economies very difficult, but the demand is no less insistent on that account.

Clearly the managers are without that intercarrier, co-operative relationship so highly essential to the best and most economical operation. They could not function in harmony when the strike threatened the paralysis of all railway transportation. The relationship of the service to public welfare, so intimately affected by state and federal regulation, demands the effective correlation and a concerted drive to meet an insistent and justified public demand.

The merger of lines into systems, a facilitated interchange of freight cars, the economic use of terminals, and the consolidation of facilities are suggested ways of economy and efficiency.

I remind you that Congress provided a Joint Commission of Agricultural Inquiry which made an exhaustive investigation of car service and transportation, and unanimously recommended in its report of October 15, 1921, the pooling of freight cars under a central agency. This report well deserves your serious consideration. I think well of the central agency, which shall be a creation of the railways themselves, to provide, under the jurisdiction of the Interstate Commerce Commission, the means for financing equipment for carriers which are otherwise unable to provide their proportion of car equipment adequate to transportation needs. This same agency ought to point the way to every possible economy in maintained equipment and the necessary interchanges in railway commerce.

In a previous address to the Congress I called to your attention the insufficiency of power to enforce the decisions of the Railroad Labor Board. Carriers have ignored its decisions, on the one hand, railway workmen have challenged its decisions by a strike, on the other hand.

The Labor Board

The intent of Congress to establish a tribunal to which railway labor and managers may appeal respecting questions of wages and working conditions can not be too strongly commended. It is vitally important that some such agency should be a guaranty against suspended operation. The public must be spared even the threat of discontinued service.

Sponsoring the railroads as we do, it is an obligation that labor shall be assured the highest justice and every proper consideration of wage and working conditions, but it is an equal obligation to see that no concerted action in forcing demands shall deprive the public of the transportation service essential to its very existence. It is now impossible to safeguard public interest, because the decrees of the board are unenforceable against either employer or employee.

The Labor Board itself is not so constituted as best to serve the public interest. With six partisan members on a board of nine, three partisans nominated by the employees and three by the railway managers, it is inevitable that the partisan viewpoint is maintained throughout hearings and in decisions handed down. Indeed, the few exceptions to a strictly partisan expression in decisions thus far rendered have been followed by accusations of betrayal of the partisan interests represented. Only the public group of three is free to function in unbiased decisions. Therefore the partisan membership may well be abolished, and decisions should be made by an impartial tribunal.

I am well convinced that the functions of this tribunal could be much better carried on here in Washington. Even were it to be continued as a separate tribunal, there ought to be contact with the Interstate Commerce Commission, which has supreme authority in the rate making to which wage cost bears an indissoluble relationship. Theoretically, a fair and living wage must be determined quite apart from the employer's earning capacity, but in practice, in the railway service, they are inseparable. The record of advanced rates to meet increased wages, both determined by the government, is proof enough.

The substitution of a labor division in the Interstate Commerce Commission, made up from its membership, to hear and decide disputes relating to wages and working conditions which have failed of adjustment by proper committees created by the railways and their employees, offers a more effective plan.

It need not be surprising that there is dissatisfaction over delayed hearings and decisions by the present board when every trivial dispute is carried to that tribunal. The law should require the railroads and their employees to institute means and methods to negotiate between themselves their constantly arising differences, limiting appeals to the government tribunal to disputes of such character as are likely to affect the public welfare.

This suggested substitution will involve a necessary increase in the membership of the commission, probably four, to constitute the labor division. If the suggestion appeals to the Congress, it will be well to specify that the labor division shall be constituted of representatives of the four rate-making territories, thereby assuring a tribunal conversant with the conditions which obtain in the different rate-making sections of the country.

I wish I could bring to you the precise recommendation for the prevention of strikes which threaten the welfare of the people and menace public safety. It is an impotent civilization and an inadequate government which lacks the genius and the courage to guard against such a menace to public welfare as we experienced last summer. You were aware of the government's great concern and its futile attempt to aid in an adjustment. It will reveal the inexcusable obstinacy which was responsible for so much distress to the country to recall now that, though all disputes are not yet adjusted, the many settlements which have been made were on the terms which the government proposed in mediation.

Public interest demands that ample power shall be conferred upon the labor tribunal, whether it is the present board or the

suggested substitute, to require its rulings to be accepted by both parties to a disputed question.

Let there be no confusion about the purpose of the suggested conferment of power to make decisions effective. There can be no denial of constitutional rights of either railway workmen or railway managers. No man can be denied his right to labor when and how he chooses, or cease to labor when he so elects, but, since the government assumes to safeguard his interests while employed in an essential public service, the security of society itself demands his retirement from the service shall not be so timed and related as to effect the destruction of that service. This vitally essential public transportation service, demanding so much of brain and brawn, so much for efficiency and security, ought to offer the most attractive working conditions and the highest of

wages paid to workmen in any employment.

In essentially every branch, from track repairer to the man at the locomotive throttle, the railroad worker is responsible for the safety of human lives and the care of vast property. His high responsibility might well rate high his pay within the limits the traffic will bear; but the same responsibility, plus governmental protection, may justly deny him and his associates a withdrawal from service without a warning or under circumstances which involve the paralysis of necessary transportation. We have assumed so great a responsibility in necessary regulation that we unconsciously have assumed the responsibility for maintained service; therefore the lawful power for the enforcement of decisions is necessary to sustain the majesty of government and to administer to the public welfare.

Southern Pacific-Central Pacific Hearing

Union Pacific Charges Discrimination Against Ogden Route and Ask that Central Pacific Be Made Independent

PRESENTATION of the Union Pacific side of the controversy over the application of the Southern Pacific for permission by the Interstate Commerce Commission to retain control of the Central Pacific was begun at the hearing before Commissioners Meyer and Potter on December 7 by Robert S. Lovett, chairman of the Union Pacific. Since November 21 the hearing had been devoted to the Southern Pacific testimony and that of the intervening shippers and state railroad commissioners in favor of or against its application. Mr. Lovett took the position that the continued possession of the Central Pacific by the Southern Pacific would not only be inimical to the Union Pacific, but also to the public interest, because of the policy which it had "gradually" and "discreetly" adopted, he said, since 1915 or 1916, of diverting traffic wherever possible from the Ogden route to its longer El Paso route in violation of the provisions of the Pacific railroad acts against discrimination by either of the two Pacific railroads which built the transcontinental route against or in favor of either company.

The Union Pacific case was completed on December 9, after which some rebuttal testimony was heard, and the hearing was practically concluded on December 13 as far as the two roads most directly involved were concerned, but the Western Pacific was expected to present evidence on the following day. The testimony taken at the hearing amounts to nearly 4,000 pages and there are over 100 exhibits. The commission allowed until January 15 for the filing of briefs and arguments will be heard by the commission on January 19 and 20.

The Interest of the U. P. in the Transcontinental Route

Mr. Lovett went into the history of the Pacific railroad acts to show that "the Union Pacific has a clear and unmistakable interest in the Central Pacific, the manner of its control and the method of its operation, which must be recognized and dealt with if constitutional rights are still to be respected. Now that the Central Pacific is required to be released from control of a competitor the Union Pacific asks that the Central Pacific be allowed to keep faith and fulfill its obligation as the owner of the western half of this one continuous line of railroad from the Missouri river to the Pacific ocean. If this western half is merged by authority of this commission with some other railroad company, then we insist it be with the Union Pacific, which owns the other half of the same railroad which the national laws under which both were constructed, mostly with government money, require to be operated as one continuous line of railroad. We insist that it would be not only a perversion of the Pacific Railroad Acts but a gross violation of the rights of

the stockholders and the security holders of the Union Pacific to turn the Central Pacific, the western half of this government-built railroad, over for all time to a company that is not interested in sending a ton of transcontinental traffic over it which it can send over its lines via other gateways, which give it a longer haul and larger revenue, and allow it to switch, as it were, to another gateway, the western end of the line, which is just as essentially a part of this great railroad project as the eastern end of it."

Mr. Lovett said the tentative consolidation plan of the commission was regarded by the Union Pacific "with the gravest apprehension, from the first," and that it had begun preparation immediately, and before the decision of the Supreme Court, to show the "injustice and disastrous effects" of its application to the Union Pacific. If the plan is approved, he said, he had no doubt that the Southern Pacific would buy the Rock Island, if it could acquire it at the price indicated by the prices at which its securities had been selling. And the Southern Pacific, he said, would send all the traffic it could through the El Paso gateway, whether it kept the Central Pacific or not, for that way would be its long haul. After acquisition of the Rock Island the Southern Pacific would use the Union Pacific, the Denver & Rio Grande or the Denver & Salt Lake for such traffic as it routed via Ogden, only as far as Denver, where the traffic would be again turned over to the Rock Island, the Union Pacific and its connections at the Missouri river would be bottled up at Ogden and the traffic would be diverted from its natural channel. "Nothing but a purpose to cripple one of the most important and most efficient transportation agencies of the United States, and the one that yielded the government the largest net return during the war year of 1918, of all the railroads under government control, could justify such a policy," he said.

U. P. Dependent on C. P. for California Traffic

"The Union Pacific has been and is dependent almost wholly upon the Central Pacific for transcontinental traffic to and from central and northern California, to serve which was the purpose of the government in constructing the lines. It has never solicited or sought to send a ton of traffic between the Missouri river and San Francisco or central California via Portland or through Los Angeles, to which some references have been made in Southern Pacific propaganda as competitive routes. The Union Pacific could not buy the Western Pacific, as I believe it might have done at some time, because of the inconsistency of such purchase with the obligation under the Pacific railroad acts. We have felt obliged to work with the Central Pacific as if it were a part of the

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Union Pacific. We have no interest or connection inconsistent with the interest of the Central Pacific."

When Mr. Harriman obtained control of the Central Pacific, the witness said, at a time when the Southern Pacific had no ready means for raising large sums of money, he had plunged ahead with improvements on the Central Pacific, providing more than \$20,000,000 through advances by the Union Pacific, although he understood that "but scant credit has been given him by some Southern Pacific officers before this commission for his work upon the Central Pacific." He did not dispute that many of the improvements, even the Salt Lake cut-off, may have been planned by Southern Pacific officers long before Harriman made them, but he asserted that such plans were mere dreams until Harriman got control, and that it was Harriman who gave the order for the work and provided the money.

"I understand officers of the Southern Pacific testified that the 'cloud' on their title to the Central Pacific is the reason why double tracking and other increases in the capacity of the Central Pacific ceased with Union Pacific control some ten years ago," said Mr. Lovett. "One might suggest in reply that improvements might be realized in an increased price in case the Southern Pacific were forced to surrender the Central Pacific, but the really surprising thing is that now that the cloud has swept down the chairman of the Southern Pacific appeared before this commission last week and avowed his purpose to proceed at once with the necessary improvements to the Central Pacific if—note the *if*—this commission grants the pending application for the lease which the Supreme Court has just declared illegal! The least that can be said about this proposition is that it is unique.

"We must expect the Southern Pacific officers to do what is lawfully for the best interests of the Southern Pacific Company. If they lawfully can get traffic for their longer haul, they should and will do so. If they can persuade this commission to allow them to retain the Central Pacific and their grip on the Odgen gateway, they should do so. I would do the same if in their place.

Diversion of Traffic

"For a number of years following its completion in 1869 the Central Pacific paid handsome dividends. From the time of the acquisition by the Southern Pacific of the stock of the companies owning the Sunset Route and from the lease of said lines and of the Central Pacific in 1885 until Union Pacific control, the Central Pacific never paid a dividend. The Sunset Route became the preferred route because it afforded the long haul. I have no doubt that the effect on the Union Pacific was very bad, but just how serious I do not know. How much this diversion of traffic had to do with the receivership I do not know, but that it had much there can be no doubt. From 1901 until 1913 the Union Pacific and Southern Pacific were under common control. The rules with respect to the routing of traffic were changed, according to my understanding, so as to send it the way that afforded the most revenue to the combined lines. Very little change followed immediately the unmerging of the Union Pacific and Southern Pacific, according to my information. The full force and power of the Southern Pacific as a competitor of the Odgen-Central Pacific line has not been exerted since 1913. The government had challenged the Southern Pacific's control; but during the long appeal of the government before the decision of the Supreme Court the activity of Southern Pacific solicitors against the Odgen gateway was greatly increased, according to the information coming to me from Union Pacific representatives. If unconditional control of the Central Pacific by the Southern Pacific is in any way finally perpetuated, my opinion is that no San Francisco or other California freight traffic to or from points east of the Missouri river which the Southern

Pacific can persuade through the El Paso gateway will ever go through the Odgen gateway unless forced that way by shippers or by competition in time or by the perishable character of the freight. In saying this I am making no criticism of the Southern Pacific or any of its representatives. They are doing precisely what the Supreme Court has many times, and in this very case only recently, recognized as the natural and inevitable effect of placing one line under the control of a competitor.

"If they succeed this important transcontinental line of railroad cannot make a rate or fix a train schedule to or from San Francisco and central California without the consent and concurrence of its rival and competitor, the Southern Pacific Company. We are asserting our rights under the Pacific railroad acts because our opponents are in effect asserting that this country has already, and as I believe, most unexpectedly to the people, arrived at the recall of decisions of the United States Supreme Court.

Judge Lovett Says Difficulties of

Separation Exaggerated

"I understand that testimony has been given here indicating that many Californians have been frightened by predictions and testimony of Southern Pacific officials as to what will happen in the way of interrupted and inferior train service and increased rates if the Southern Pacific is required, like all other corporations and people heretofore have been, to obey the decision of the Supreme Court. Of course if the Southern Pacific is to be allowed by the circuit judges when they come to enter their decree and by the California Railroad Commission to absolutely run amuck and do whatever it can to make good its threats, it may do much to inconvenience the public. I assume that these railroad companies will be prevented from interrupting or interfering with the continuity of the train service or in any wise increasing the existing rates except with the consent and approval of proper state and interstate regulatory authority. Trains which now run over portions of both lines should continue to run and the apportionment of the through and joint expenses and revenues can be easily adjusted by agreement of the interested parties in the ordinary way or can be determined by the court or commission if they fail to agree. With great respect for my friends on the other side, I am, nevertheless, bound to say that these lions they have put in the way are very tame and harmless. In the agreement of February 8, 1913, between the Southern Pacific, Central Pacific and Union Pacific, no difficulty was found in providing for this difficulty which the Southern Pacific now presents as so frightful. Once it is settled that the Supreme Court decision is to be carried out all these difficulties will disappear. The Southern Pacific will face about and begin to talk up the Central Pacific to enhance its price if it concludes to sell, for I know the Southern Pacific officers and know something of their great ability as business men.

"Much has been said about the disastrous effects of cutting the Southern Pacific off from its lines in Oregon which are reached only over the Central Pacific. Certainly I should favor the granting of full and equal joint use to the Southern Pacific of the Central Pacific line between Tehama and the connection with the Oregon lines which would assure the Southern Pacific substantially the same use it now has. By the agreement of 1913 the entire use of this part of the Central Pacific was leased to the Southern Pacific, but the government's bill and the Supreme Court's decision seem to contemplate that there shall be competition by the Central Pacific and Southern Pacific lines between San Francisco and Portland.

"Apparently many people in California are in favor of this procedure. Being myself a consistent believer in the principle of competition in service and facilities, I fail to appreciate the reasons why these people oppose it in this in-

stance. However, the plan which this commission is about to lay out for the permanent establishment of the great transportation groups and channels of commerce for this country should be settled by consideration of the permanent welfare of the country and of the people and not by public clamor or the agitation of particular agencies and particular communities in which both parties must almost necessarily resort to propaganda and even ordinary political campaign methods.

"The time has been when the Southern Pacific, its officers, management and the operation of its lines were damned as a grinding monopoly and otherwise by a majority of the people in San Francisco and central California, at least as much as they are now praised. I am sure they were wrong then, for I believe the Southern Pacific almost made California and has been the greatest agency for the development of California that ever existed in that state. I believe the people of California were mistaken in opposing the Southern Pacific then, and I believe they are mistaken in falling in with the Southern Pacific's plans now. They changed their opinion before and I believe they will change it again. Hence I say it is not the fluctuating and more or less cultivated opinion of a community for the time being that should govern, but the deliberate judgment of this commission looking to the future as well as the present that should prevail in settling these important and enduring transportation lines."

Cross-Examination

Mr. Lovett was subjected to a long cross-examination by F. H. Wood, commerce counsel of the Southern Pacific, who asked how much tonnage it was claimed the Southern Pacific had diverted. Mr. Lovett said he had no figures, but that he was interested in the principle and knew that if allowed the Southern Pacific would adopt a more vigorous policy than it had while the litigation was pending. He said that numerous reports had been made to him by B. L. Winchell, while he was traffic director of the Union Pacific, and since by President C. R. Gray and Vice-President H. M. Adams, that the Southern Pacific agents were working against the Ogden gateway in the territory where it had originally been the announced policy to work through that gateway. He said that this had been done to such an extent that he had determined to resort to litigation under the terms of the Pacific railroad acts as a remedy if the Supreme Court had not decided the Southern Pacific-Central Pacific case in the way it did. Asked if he had expected to be successful, he replied: "There is always a chance in a lawsuit." Whereas since its separation from the Union Pacific the Southern Pacific had not added a mile of double track to the Ogden line, he said, on the contrary he knew of no railroad on which the standard of maintenance had been so improved as on the Sunset Route. When Mr. Wood asked if that were a matter of great concern in this case as long as the Central Pacific had been kept in a condition to be able to handle its business effectively, he replied that the necessity for double tracking had been lessened because the Southern Pacific had tried not to send business that way. Referring to the geographical line which L. J. Spence, traffic director of the Southern Pacific, had described as governing the Southern Pacific solicitation as between the Ogden and El Paso routes, Mr. Lovett said that Mr. Winchell had reported that the line had been gradually moving west and his last information was that it had about vanished. The solicitors who formerly had reported to local offices, he said, had been put under Mr. Spence and had been given oral instructions under which the solicitation encountered by the Union Pacific traffic solicitors was "practically Sunset Route everywhere."

Referring to Mr. Spence's testimony that he had explained the plan of Southern Pacific solicitation to Mr. Lovett soon after the unmerger and that he had pronounced it satisfactory, Mr. Wood asked the witness if he had not advised at the time that it would be unwise for the Southern Pacific

to give the Union Pacific a memorandum on the subject so soon after the dissolution. He replied that he had said that of course the two companies could not agree not to compete but that it would be wise to continue the territory from which traffic had been solicited preferentially for each of the two lines, and that agreement on this subject had been made public as a part of the dissolution plan.

Mr. Wood asked how the Union Pacific solicited southern California and north Pacific coast business. Mr. Lovett replied that it ought to solicit via the Salt Lake route for southern California and that he certainly hoped it solicited Portland business via the Oregon Short Line and O.-W. R. & N. Asked if this represented any violation of the Pacific railroad acts, he said that the Central Pacific does not run within 400 miles of Portland or 300 miles of Los Angeles and that business for those points was legitimately handled by Union Pacific system lines. Asked who should be the judge of the legitimacy of a route, he said that when the question is raised a judge would have to determine. When Mr. Wood mentioned a reference in the Supreme Court decision to a movement to San Francisco via the Union Pacific to Portland, Mr. Lovett retorted with some energy that the Interstate Commerce Commission's agents had combed the United States and that every Union Pacific agent who had lost his job by the consolidation of agencies after the merger had been questioned, but they had not succeeded in showing that a ton of freight had ever been solicited by the Union Pacific that way and they had shown only one shipper who had sent freight that way. "I feel quite strongly on that point," he said. "We think we are complying with the Pacific railroad acts. If we are not it is our policy to do so and we think the Central Pacific ought to."

Mr. Wood tried to show an inconsistency between Mr. Lovett's present position and his testimony before the California commission in 1913 that so far as immediate results were concerned it might be better for the Union Pacific for the Southern Pacific to keep the Central Pacific because then traffic from central California would continue to go to the Union Pacific at Ogden. He said this statement was predicated on the Southern Pacific's policy remaining the same as it had been and also applied only to the immediate results because the Union Pacific expected to have to build extensive lines in California to supplement the Central Pacific lines before it would be independent of the Southern Pacific. He declined to admit any inconsistency and said that the Union Pacific now would probably lose traffic for a while after a separation of the Central Pacific from the Southern Pacific. He denied that the Union Pacific ownership of stock in the Illinois Central constituted a control of routes between the Missouri river and Chicago and between Chicago and New Orleans, saying that it represents only an investment and that the North Western is the preferred connection at the Missouri river. He said he had argued strenuously with Professor Ripley that the Union Pacific ought to be left at the Missouri river to interchange with several routes rather than linked up with one line to Chicago.

"It is very difficult for me to conceive of the commission's nullifying the decision of the Supreme Court," said Mr. Lovett, "even pending the action of the lower court on the mandate. According to my view of it, the Supreme Court has decided this proposition, and I do not want to take any position that would indicate that the Union Pacific takes any other attitude."

"What is your position as to an independent Central Pacific?" asked Mr. Wood.

U. P. Not Seeking to Buy C. P.

"Our position is outlined in a public statement given out on June 10 by President Gray that we were not seeking to buy the Central Pacific, but that we would buy it if fair and reasonable terms could be agreed upon," said Mr.

Lovett, "and if it could be separated from the Southern Pacific under conditions that would allow it to live. All the Union Pacific is contending for is that it be made independent of the Southern Pacific."

Mr. Lovett was then questioned by Mr. Scandrett as to the ability of the Central Pacific to finance itself if separated. He said it ought to be a self-sustaining property, assuming that it would be treated fairly by the court in the dissolution decree, although a great deal may depend on the conditions under which the lines are separated. At the end of Union Pacific control, he said, the Central Pacific had a surplus of about \$25,000,000 and the Southern Pacific owed it approximately \$30,000,000. The surplus was reduced by a 20 per cent special dividend which transferred much of it to the treasury of the Southern Pacific and dividends have since been paid on both preferred and common stock while the surplus has again been increased. He said he did not criticize the action in declaring the special dividend; that it was proper and wise. He also went into the subject of the Central Pacific bond issues and said that it owns a very valuable land grant which might be made the basis for some financing. While it has been the practice of the Southern Pacific to take title to the equipment allocated to the Central Pacific, he said that in case of a separation it would be fair for the Central Pacific to buy it at its depreciated value and pay for it in equipment obligations, as the types are better adapted for use on the Central Pacific than on the Southern Pacific. If this were not done, he said, there would be no difficulty in the Central Pacific buying all the equipment it needed in the usual way, by equipment trust obligations, which, as they are secured largely by the equipment itself, can be sold, he said, without much reference to the financial credit of the railroad company.

Propaganda

In reply to a request from Mr. Scandrett that he say something about the publicity work and so-called propaganda that has been criticized, Mr. Lovett said he thought mistakes along this line had been made by both sides. Almost immediately after the Supreme Court decision, he said, a very active propaganda was started on the Pacific coast in favor of the commission's tentative consolidation plan, which allocated the Central Pacific to the Southern Pacific, and against the carrying out of the Supreme Court decision. For a time the Union Pacific said nothing, but the movement spread so rapidly that he and President Gray had conferred and decided they should let the public know what the Union Pacific conceived to be its rights in the case and the course it intended to pursue, that it was opposed to the tentative plan and expected to do what it could to oppose it. He and Mr. Gray then prepared jointly a public statement and decided they ought to take any legitimate means to get their views to the public. Mr. Gray was to handle it in the west and Mr. Lovett said he had authorized the expenditure of whatever might be necessary for the purpose with only the limitation that nothing illegal should be done. They had both agreed that there should be no criticism of Southern Pacific officers because, he said, "they were only doing what we would do if in their place." "The fight got started," he said, "and many agencies were employed. I didn't keep up with the details, but Mr. Gray used to tell me a good deal. Whatever he did within that limitation I endorse and approve, but I realize that in carrying on a work of that kind with so many agencies, some of them strangers to us, mistakes might be made and some things were done which we wouldn't do. I also saw some things on the other side that I thought the Southern Pacific officers would not have approved. But it was a good deal like a war or a political campaign.

At this point Commissioner Meyer remarked that the commission now has some responsibility as to operating ex-

penses and asked Mr. Lovett whether he would say that these expenditures for publicity were warranted. Mr. Lovett said that it was agreed at the outset that they ought not to be charged to operating expenses and they have been carried in a suspense account with a view to charging them to profit and loss—that is to the stockholders rather than to the public, but he thought they were perfectly legitimate and necessary to protect the interests of the company.

On cross-examination Mr. Wood said he had not intended to question Mr. Lovett about propaganda, but since Mr. Scandrett had raised the question he asked whether he had seen any statements from the Southern Pacific prior to that issued by Mr. Gray. Mr. Lovett said he did not recall any during that period in the name of the Southern Pacific, but there were many reports in the newspapers regarding the position of various commercial organizations, etc., which he had no doubt were inspired by the Southern Pacific. When Mr. Wood asked if the Union Pacific had not organized a publicity bureau in Washington in the name of the California Producers' and Shippers' Association, he said that Mr. Gray had told him that he had heard of it recently and had disapproved it. When Mr. Wood said that this bureau had issued a statement by Mr. Gray on the opening day of the hearing Mr. Scandrett stated that Mr. Gray had not authorized it and had merely given the interview to a Sacramento newspaper. "When you employ a lot of people to conduct a hard fight, especially some enterprising newspapermen, you don't always know all they'll do," said Mr. Lovett.

Commissioner Potter then said he would like to hear expressions on the propriety of the commissioners reading propaganda. He had received a pamphlet in the mail sent out by a Mr. Edgerton and wondered whether he ought to read it. Mr. Wood promptly expressed the opinion that the commissioners may with propriety read anything, but that he was sure their decision would be based on the evidence. E. O. Edgerton, director of the California shippers' committee against dismemberment, said he did not know that the pamphlet had been sent to the commissioner but that he thought it was based on facts. Mr. Potter said he would plead guilty of reading it, but wondered if he had so opened the door that he was now obligated to read the so-called Union Pacific propaganda. Mr. Scandrett said he thought the discussion of propaganda had no place in the hearing, but he had asked Judge Lovett to state his views because of the attack that had been made by the other side.

Adams Says S. P. Discriminates Against Ogden Route

H. M. Adams, vice-president in charge of traffic of the Union Pacific, said that an independent Central Pacific would create an additional active competing route between central California and the East and would foster intensive development of that part of California and other states served by its rails, to the material aid and betterment of the several states. There would be an added incentive to increase the interchange of commodities between Utah and Idaho and contiguous territory on the one hand, and points served by the Central Pacific on the other. It may be assumed, he said, that if the two railroads are separated they will be managed by men of experience and broad vision, who will not undertake to circumvent the purpose of the separation or unnecessarily inconvenience the public. With reasonable arrangements for joint use of tracks and terminals, proper through service and rates can be maintained without difficulty, as President Sproule of the Southern Pacific stated it was the intention of the Southern Pacific to do under the contract of 1913.

The Central Pacific, through the Ogden gateway, with the Union Pacific and its connections, forms in comparison with the Southern Pacific through El Paso, the shorter line between central and northern California and the greater part

of the United States east of Denver and Pueblo, Mr. Adams said, and he presented a map and mileage figures to show that only a small part of the territory from which Mr. Spence stated that the solicitation of the Southern Pacific is preferentially via New Orleans or the Texas gateways is within the district where the distances are in favor of such solicitation. "It is thus shown conclusively," he said, "that the division of eastern territory for preferential soliciting and routing purposes, even as stated by Mr. Spence, creates an undue discrimination and prejudice against the Ogden gateway which the decision of the Supreme Court seeks to correct. Attention might well be called to the waste in transportation service which must result in the movement of traffic via circuitous and longer routes. The influence of the originating carrier upon the shipper is very great, and where the relations are cordial, the shipper is generally quite willing to favor the through route suggested or preferred by such originating carrier."

Mr. Adams said he had had great difficulty in obtaining an understanding with the Southern Pacific as to its solicitation policy, although co-operation by the parties to the through route via Ogden was important, but that experience had indicated that the Southern Pacific representatives directed their efforts toward securing for the Southern Pacific the longest possible haul, the route via Ogden being favored only when the nature of the traffic, the train service, or the preference of the shipper was such that they considered it unwise to undertake to prevail upon the shipper to use other routes. He illustrated this by actual instances. He said that the tonnage figures used in the Southern Pacific exhibits, to show the small proportion of traffic which could be diverted from one route to the other, were for 1921, which did not represent a normal condition because of the general business depression and the amount of traffic diverted from rail lines by the Panama Canal.

Joint Use of Facilities Declared Feasible

E. N. Finch, general superintendent of the Oregon-Washington Railroad & Navigation Company, described the joint operation of tracks and terminals in which that company participates with the Southern Pacific, Great Northern, Northern Pacific, Spokane, Portland & Seattle, and Chicago, Milwaukee & St. Paul, to show that joint use of facilities can be worked out on a satisfactory basis. This company participates in joint use of 550 to 560 miles of track.

W. A. Whitney, general manager of the Utah-Idaho Central, and formerly for some five years a division superintendent of the Southern Pacific, testified regarding operating conditions on the California lines as they would result from a separation of the Central Pacific from the Southern Pacific. He described in detail how joint use of facilities could be worked out and expressed the opinion that it would be entirely practicable to effect the separation without disruption or impairment of the present service to the public. He said that joint trackage arrangements would permit a service to the public so nearly identical with the present service that the interests of shippers and passengers would not be affected. He replied in detail to testimony given by F. L. Burckhalter of the Southern Pacific, contending that his estimate of increased operating expenses and capital investment were excessive. He said the problem could be worked out very simply by the operating officers of the two companies with proper co-operation. The routing would have to be changed somewhat in some cases, but the public would not be prejudiced, he said. Commissioner Potter asked questions as to how the operation could be worked out if the Ogden line were separated and the California lines given to the Southern Pacific.

J. E. Muhlfeld, consulting engineer, testified that in his opinion joint operation under neutral management could be applied to the Sacramento shops and various engine houses,

etc., in a way that would be feasible and practicable and result in operation as efficient as that of a single company.

N. D. Ballentine, superintendent of transportation of the Union Pacific, testified as to the effect of a separation of the Central Pacific on car service, saying that only an insignificant increase in equipment would be required to handle the business.

C. R. Gray, president of the Union Pacific, said in part: "It has been charged that the Union Pacific attitude with respect to the Central Pacific has not been consistent throughout. The first announcement of our position with respect to this matter was made under date of June 10, 1922. This position has never changed, and is the same now. The Union Pacific is not primarily, nor fundamentally, asserting a desire to extend its ownership into central and northern California. Our contention is that we are entitled, however, to a connection on the part of the Central Pacific which will work with us whole-heartedly, and has no conflicting interests on account of an additional route through other gateways."

"It is admitted that the long association of the Southern Pacific and Central Pacific in central California has produced a character of community of interests which must have consideration. The shipping and traveling public should not suffer as a result of conditions for which it is not in any way responsible, nor should there be any increase in rates over the basis which has been applied heretofore. Neither should it be deprived of any essential service. The Supreme Court clearly recognized the possibility of these disruptions, and expressly provided that there should be an accommodation of such matters."

"There is ample precedent for the joint use of lines and such joint use is conventional throughout the country. There are many arrangements which are customary, some of which have individual features, due to unique and unusual local conditions, but they are all composed of elements of similarity. Probably the one most prevalent is the so-called 'bridge' arrangement, by which through trains of a tenant line are routed between given points without any intermediate traffic rights. Another is to give the tenant the right to handle freight and passengers to and from its own lines, having origin and destination at stations on the joint line, and still a third is where the tenant has full, free and equal traffic rights."

"Still other methods of joint use comprehend the use of pieces of line by a tenant upon a train-mile basis, with varying traffic rights, and still another limits the use to passenger or to freight train service, as the case may be."

"Still another limits the use to a commodity, and another method is in vogue by which the operation of a certain line is joint throughout, one of the users being entitled to the full haul on all traffic going to its line and *vice versa*, the general and operating expenses being divided upon the basis of benefits received. Still another provides for through operation of trains and engines, each line retaining its individual earnings, and assuming the expense of through trains and locomotives on mileage basis. It can be seen that there are very many precedents for the practical operation of joint trackage between railroads, and any of them could be used in the final disposition of particular parts of this problem, and could be negotiated so as to insure the practical compliance with any detail of the court decree, which would unquestionably have as its basis, the public interest."

Mr. Gray also replied in detail to some comparisons between the respective operations of the Southern Pacific and Union Pacific made by Mr. Kruttschnitt.

The relative business efficiency of each as a common carrier, depends, in the last analysis, upon all of the service performed, and not upon isolated and selected statistics, he said.

Just preceding Mr. Lovett's testimony a number of traf-

fic managers of large shippers located in Detroit, Fort Wayne, Rockford, Chicago and St. Louis had been placed on the stand to explain the character of the solicitation of their freight by the Southern Pacific and Union Pacific agents. Most of these witnesses were asked by H. A. Scandrett, counsel for the Union Pacific, whether the Southern Pacific agents had solicited their traffic via Ogden. The usual answer was that in recent years they had merely solicited their business for a Southern Pacific route, but that the business for central and northern California was generally routed via the Ogden gateway by the shipper. Mr. Wood asked questions to bring out that they were not preferentially solicited by the Southern Pacific agents for the southern routes and also that they usually routed the freight to suit themselves regardless of the solicitation. Senator Gooding of Idaho made a statement in which he bitterly criticized the practices which he said resulted from the monopoly of the Union Pacific system in Idaho and urged that it should not be made more complete by Union Pacific dominance over the Central Pacific. He said that if the Southern Pacific were confined in its control of the Central Pacific it might build competing lines into Idaho.

Rebuttal

After the Union Pacific had rested its case the Southern Pacific put on the stand a large number of traffic managers of middle western shippers and general agents of the Southern Pacific who testified in rebuttal regarding solicitation by the Southern Pacific for the Ogden route.

Monday and Tuesday of this week were devoted to rebuttal testimony on behalf of the Southern Pacific and cross-examination and considerable time was devoted to a discussion of just what lines were meant by the Supreme Court when it directed that the several terminal lines and cut-offs leading to San Francisco Bay, which have been constructed or acquired during the unified control of the two systems for convenient access to the bay, should be dealt with either by way of apportionment or by provisions for joint or common use. Commissioner Potter asked that maps be filed giving this information and said it was important to have all the available facts in the record on this point. He also asked for information to show just how much of the lines to Southern California and toward Portland were to be considered as included in the original Central Pacific project. Mr. Wood filed three maps, with an explanation of the questions arising as to just what is to be considered as Central Pacific property, and said that it is at last questionable whether the court referred to any period prior to the acquisition of stock control by the Southern Pacific in 1899. He said he understood that in anti-trust cases the Supreme Court has never ordered a separation of properties except with reference to lines of corporate ownership. The Union Pacific also filed a map. Mr. Potter said that the commission might conclude that construction since the control was just as much for the account of the Central Pacific as for the Southern Pacific.

Finances of the C. P.

A. D. McDonald, vice-president and comptroller of the Southern Pacific, went into the finances of the Central Pacific in considerable detail to show the financial inability of the Central Pacific to stand successfully as an independent road. The testimony of Mr. McDonald was largely directed at rebutting the earlier testimony of Judge Lovett. "The credit of the securities of the Southern Pacific Company, and of its constituent companies," he said, "rests in a large degree on the value of the Central Pacific as a part of the Southern Pacific transportation system. The market value of the Southern Pacific Company's securities, particularly its stock, is based on the value placed upon that company's equities in the Central Pacific. Deprive the Southern Pacific Com-

pany of the Central Pacific, and the market value established by the Southern Pacific Company for its securities since its organization in 1885, will have to be re-established and adjusted to the financial results ex-Central Pacific.

"I think it should be obvious to any one with a sense of justice and fair play, who will make an impartial examination of the affairs of the Southern Pacific Company and the resources of the Central Pacific that it is only through the continued ownership of the Central Pacific by the Southern Pacific that the holders of the securities of both companies will be fully protected and safeguarded and that the traveling and shipping public will be given the service they expect and should receive. I cannot bring myself to believe that the business interests of the communities served by the Southern Pacific Company's Lines should be unsettled, if not jeopardized, by the separation sought for by the Union Pacific and others. Great harm to a great many persons will certainly be done by the separation, while the good expected therefrom is problematical and remains to be ascertained."

Mr. McDonald was questioned about Judge Lovett's reference to the credit position of an independent Central Pacific. He presented an income account of the Central Pacific for the ten years from 1912 to 1921. For that period he said the net income applicable to the payment of interest and dividends averaged \$12,695,000. The interest on the funded debt for 1921 amounted to \$7,684,000. The balance remaining over the interest amounted to \$5,011,000, which is slightly less than six per cent on the common and preferred stock.

Says C. P. Would Lose Traffic

"If no dividends had been paid by the Central Pacific during the ten year period the amount remaining after paying for the additions and betterments which cannot be capitalized, would be \$2,711,000, which is equivalent to four per cent on the preferred stock and about three per cent on the common stock. This amount would entirely disappear under independent operation of the Central Pacific. Mr. Burckhalter has testified that if the Central Pacific is separated from the Southern Pacific the present operating expenses will be substantially increased. Moreover, Mr. Spence testified that under independent operation the Central Pacific would lose about 500,000 tons of freight annually."

Mr. McDonald stated that "if and when these things happen the Central Pacific instead of being a self-supporting property able to earn its fixed charges and a reasonable dividend with a margin for ordinary additions and betterments, which cannot be capitalized, would be unable to pay all its fixed charges. If the Southern Pacific's application to retain the Central Pacific is not granted, the Southern Pacific, because of its guarantee of the bonds of the Central Pacific, would have to make good any fixed charges the Central Pacific was unable to pay."

WESTBOUND PASSENGER TRAIN No. 5 of the Erie railroad was derailed near Tusten, N. Y., on the night of December 11 and the locomotive fell down a bank. The fireman was killed and the engineman injured.

At Hanahan, S. C., on December 9, a northbound passenger train of the Atlantic Coast Line, No. 80, second section, ran into the rear of passenger train No. 52, crushing a sleeping car of the last-mentioned train. One person was killed and 19 were injured. This collision occurred in a dense fog.

On the Philadelphia & Reading at Port Clinton, Pa., on December 12, the derailment of a freight train resulted in the death of two passengers of train No. 9, a part of the wreck having fallen against the passenger train as it stood at the station. Two coaches were overturned and a number of passengers were injured.

General News Department

The annual meeting of Division VI—Purchases and Stores—of the American Railway Association will be held in Chicago on May 22, 1924.

The Tenth National Foreign Trade Convention of the National Foreign Trade Council will be held in New Orleans from April 25 to 27, 1923.

Examiners Borland and Mullen of the Interstate Commerce Commission have concluded hearings in the general air brake investigation and briefs are to be filed by February 10.

In a fire at East Somerville, Mass., on Sunday, December 10, the Boston & Maine lost a wooden storehouse with large quantities of electrical and signal apparatus and other roadway material; estimated total loss, \$250,000.

The American Railway Association announces that by action of the board of directors Alfred P. Thom has been appointed general counsel of the association. Mr. Thom already holds the position of general counsel of the Association of Railway Executives.

The Boston & Maine has been authorized by the Interstate Commerce Commission to install automatic train-stop or train-control upon one full passenger-locomotive division between Boston, Mass., and Greenfield, Mass., in lieu of the installation required in the order of June 13.

General increases in pay ranging from one cent an hour to five cents an hour have been granted by the Pennsylvania Railroad to maintenance of way employees. It is said that the total annual addition to the payrolls which will result from this order will be \$1,800,000. The increases are retroactive to November 1.

Senator-elect Shipstead, of Minnesota, appearing before a sub-committee of the Senate judiciary committee last week, opposed the appointment of Pierce Butler to the Supreme Court, presenting a letter referring to Mr. Butler's activities as a corporation lawyer and as counsel for western railroads in valuation proceedings.

The Association of Railway Executives, at a meeting in Chicago on December 7, acting on a report presented by a special committee, Robert S. Lovett, chairman, adopted resolutions under which henceforth the functions of the Association will be confined to questions of National legislation, Governmental action and policies and legal matters of large importance which affect all or substantially all of the railroads of the country. The position of chairman of the association, recently vacated by the untimely death of Mr. Cuyler, is discontinued for the present, and the affairs of the association will be directed by the executive committee. After the first of January, the association will be administered from the office of the general counsel, in Washington, and the New York office will be discontinued. Stanley J. Strong, of New York, formerly executive Assistant, was elected secretary and treasurer.

Disastrous Collision at Humble, Texas

Press dispatches of December 13 report a collision on the Southern Pacific (Houston, East & West Texas) at Humble, Tex., 18 miles north of Houston, on the evening of that day, in which 10 persons were killed and 30 or more injured. North-bound passenger train No. 28 collided with a switching engine in front of the station. Because of the rupture of a steam pipe

many passengers were scalded. It is said that the switching engine had drifted afoul of the main track while the engine-man and fireman had gone to supper.

"Boring From Within"

Plans for amalgamating the 16 existing railroad labor organizations were discussed at a three-day convention at Chicago, which ended on December 11. A manifesto was adopted and a committee of 50 appointed to carry on the work advocated at this meeting. Reports indicate that of the 360 persons present the majority were former shop employees who are still on strike.

The leaders of the larger railway labor organizations did not participate in this meeting and several of them warned the members of their organizations not to attend. The presence of William Z. Foster and other advocates of the "one big union" idea, indicated that the purpose of the convention was to perfect plans for "boring from within" the existing organizations in order to bring about their dissolution.

Railway Revenues and Expenses for October

The net operating income of the Class I railroads in October totaled \$85,234,000, equal to a return, on an annual basis of 4.05 per cent on their tentative valuation. The same roads in October last year reported \$105,425,600 or 5.01 per cent; and in September this year \$58,457,000, or 2.88 per cent.

Operating revenues now reported aggregate \$549,284,800, an increase of 2½ per cent; operating expenses \$428,265,000, an increase of 7.8 per cent.

While expenditures for maintenance of way and structures in October totaled \$68,800,000, or 5 per cent less than in October last year, expenditures for maintenance of equipment were \$130,212,000, or an increase of 16.2 per cent; and the number of freight cars in need of repairs was reduced by 41,694. There was a reduction of 1,361 in the number of locomotives in need of repairs.

During the first 10 months this year net operating income was \$614,627,000, compared with \$499,346,000 during the corresponding period last year. This is at the annual rate of return of 3.97 per cent, compared with 3.23 per cent in 1921.

Twenty-six railroads in October had operating deficits, of which 15 were in the Eastern district, one in the Southern and 10 in the Western. In September 44 roads reported deficits.

Senator Capper Asks Report on Excess Earnings

A resolution calling upon the Interstate Commerce Commission to furnish detailed information in a report to the Senate as to the amount of earnings in excess of 6 per cent of Class I railroads for the years 1920 and 1921, was introduced in the Senate on December 8 by Senator Capper of Kansas. The resolution says that it is reported that many railroads have earned in excess of 6 per cent, but have failed to make report of the same to the commission; "in disregard of the trust created by said section 15-a, have devoted all of said excess to their own uses" and that 13 great railroad systems will increase their dividends this year. The commission is asked to report its regulations for the determination and recovery of excess income, with a calculation of the excess and the reasons offered by any railroad which has failed or refused to make a report.

The commission, in its annual report submitted to Congress the day before this resolution was introduced, had explained the steps it had taken to get returns from the roads and that it had received only approximately \$25,000 of excess earnings so far. It showed that the recovery of excess earnings was being delayed by the necessity for having valuation figures and declared that reducing its appropriation for valuation more rapidly than it had planned would probably defer recovery of excess earnings.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1922

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses			Operating ratio.	Net from railway operation.	Operating income (or loss).	Net after rentals, 1921.	Net after rentals, 1922.
		Freight.	Passenger.	Total.	Maintenance of way and structures.	Equip- ment.	Traffic.					
Akron, Canton & Youngstown.....	170	\$186,039	\$901	\$186,940	\$30,337	\$19,280	\$7,516	63.30	\$72,244	\$61,215	\$33,361	\$36,934
Albany & Vicksburg.....	170	1,726,868	13,055	1,739,923	219,056	193,269	59,654	59.10	745,817	651,189	379,381	210,014
Albany & Vicksburg.....	141	1,718,582	571,437	2,290,019	460,557	469,287	83,498	82.70	362,533	170,675	36,285	98,416
Vicksburg, Shreveport & Pacific.....	171	204,215	92,102	296,317	41,697	73,633	8,937	81.00	69,876	44,737	39,665	67,345
Ann Arbor.....	171	1,869,507	903,637	2,773,144	520,745	538,971	98,103	83.30	498,776	310,415	236,573	326,905
Ann Arbor.....	293	3,530,123	40,771	3,570,894	64,904	108,893	19,116	80.10	91,928	69,487	36,600	120,268
Ann Arbor.....	10 mos.	3,530,123	40,771	3,570,894	64,904	108,893	19,116	80.10	91,928	69,487	36,600	120,268
Atlanta & West Point.....	93	1,100,672	715,144	1,815,816	275,006	438,653	79,295	82.60	364,483	246,629	167,995	118,768
Atlanta & West Point.....	10 mos.	1,100,672	715,144	1,815,816	275,006	438,653	79,295	82.60	364,483	246,629	167,995	118,768
Atlanta, Birmingham & Atlantic.....	133	201,405	73,936	275,341	25,462	56,688	8,883	63.00	112,342	92,836	90,962	48,854
Atlanta, Birmingham & Atlantic.....	10 mos.	1,298,699	659,506	1,958,205	265,163	437,900	85,043	75.40	539,554	412,978	417,023	222,173
Atlanta, Birmingham & Atlantic.....	10 mos.	1,298,699	659,506	1,958,205	265,163	437,900	85,043	75.40	539,554	412,978	417,023	222,173
Atlantic Coast Line.....	4,929	4,265,972	1,157,037	5,423,009	339,348	1,313,305	101,015	74.60	1,554,078	1,103,121	1,258,875	743,239
Atlantic Coast Line.....	10 mos.	4,265,972	1,157,037	5,423,009	339,348	1,313,305	101,015	74.60	1,554,078	1,103,121	1,258,875	743,239
Charleston & Western Carolina.....	342	2,134,220	381,836	2,516,056	432,120	400,772	67,295	80.20	176,028	153,090	120,639	406,665
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Baltimore & Ohio.....	5,235	15,850,210	22,405,474	38,255,684	1,900,750	5,643,858	311,379	80.20	3,910,901	3,792,723	3,081,157	3,422,497
Baltimore & Ohio.....	10 mos.	15,850,210	22,405,474	38,255,684	1,900,750	5,643,858	311,379	80.20	3,910,901	3,792,723	3,081,157	3,422,497
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REVENUES AND EXPENSES OF RAILWAYS

MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1922—CONTINUED

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses			Operating ratio.	Net from railway operation.	Operating income (or loss).	Net after rentals.	Net after rentals 1921.
		Freight.	Passenger.	Total (inc. misc.).	Maintenance of way and structures.	Traffic.	Transp.					
Chicago, Indiana & Louisville.....Oct.	654	\$1,104,040	\$257,714	\$1,361,754	\$135,446	\$30,082	\$554,898	72.50	\$419,861	\$350,688	\$243,034	\$312,382
Chicago, Milwaukee & St. Paul.....Oct.	654	\$1,306,277	\$250,784	\$1,557,061	\$137,489	\$32,994	\$552,421	76.20	\$312,391	\$248,504	\$249,290	\$249,290
Chicago, Milwaukee & St. Paul.....10 mos.	11,030	\$12,283,048	\$1,956,246	\$14,239,294	\$1,224,431	\$1,966,611	\$5,513,021	78.20	\$3,468,677	\$2,745,346	\$2,324,314	\$2,510,140
Chicago, Milwaukee & St. Paul.....10 mos.	11,030	\$12,283,048	\$1,956,246	\$14,239,294	\$1,224,431	\$1,966,611	\$5,513,021	82.70	\$22,155,166	\$14,075,179	\$10,205,383	\$5,080,894
Chicago, Peoria & St. Louis.....Oct.	246	\$153,076	\$14,019	\$167,095	\$25,675	\$4,082	\$94,338	103.00	\$5,424	\$16,324	\$31,655	\$32,567
Chicago, Peoria & St. Louis.....10 mos.	246	\$1,452,681	\$179,915	\$1,632,596	\$81,222	\$43,760	\$1,024,731	103.60	\$62,854	\$160,883	\$291,931	\$400,641
Chicago River & Indiana.....Oct.	38	.....	.....	.....	.....	.....	.....	61.80	.....	.....	.....	.....
Chicago River & Indiana.....10 mos.	38	.....	.....	.....	.....	.....	.....	62.20	.....	.....	.....	.....
Chicago, Rock Island & Pacific.....Oct.	7,635	\$8,094,854	\$2,256,254	\$10,351,108	\$1,780,333	\$4,082	\$94,338	79.10	\$2,433,343	\$1,894,610	\$1,522,828	\$2,076,573
Chicago, Rock Island & Pacific.....10 mos.	7,635	\$8,094,854	\$2,256,254	\$10,351,108	\$1,780,333	\$4,082	\$94,338	80.30	\$19,488,147	\$14,122,802	\$11,872,264	\$13,054,663
Chicago, Rock Island & Gulf.....Oct.	461	\$392,266	\$75,340	\$467,606	\$80,160	\$1,199	\$252,583	86.80	\$66,756	\$53,617	\$39,666	\$132,176
Chicago, Rock Island & Gulf.....10 mos.	461	\$3,643,769	\$775,423	\$4,419,192	\$723,487	\$13,448	\$2,176,215	81.40	\$896,569	\$775,337	\$596,252	\$1,196,925
Chicago, St. Paul, Minn. & Omaha.....Oct.	1,749	\$1,842,994	\$483,470	\$2,326,464	\$349,718	\$34,186	\$1,057,343	81.20	\$477,962	\$326,632	\$334,835	\$456,911
Chicago, St. Paul, Minn. & Omaha.....10 mos.	1,749	\$16,340,215	\$5,080,572	\$21,420,787	\$3,011,866	\$34,799	\$10,351,114	80.50	\$4,520,778	\$3,169,021	\$2,886,209	\$3,844,897
Cincinnati, Indianapolis & Western.....Oct.	347	\$392,079	\$40,746	\$432,825	\$50,071	\$10,234	\$173,638	76.70	\$107,228	\$87,120	\$28,645	\$36,843
Cincinnati, Indianapolis & Western.....10 mos.	347	\$2,872,291	\$458,418	\$3,330,709	\$453,520	\$109,940	\$1,522,781	86.40	\$481,187	\$319,510	\$65,356	\$69,189
Colorado & Southern.....Oct.	1,099	\$947,617	\$164,776	\$1,112,393	\$224,772	\$9,971	\$516,310	96.10	\$47,229	\$24,893	\$68,575	\$288,697
Colorado & Southern.....10 mos.	1,099	\$8,297,274	\$1,721,521	\$10,018,795	\$1,630,512	\$133,915	\$4,056,694	80.50	\$2,112,194	\$1,438,877	\$1,091,882	\$1,582,515
Ft. Worth & Denver City.....Oct.	456	\$681,764	\$203,800	\$885,564	\$101,401	\$10,425	\$304,137	77.40	\$215,304	\$160,218	\$130,201	\$396,118
Ft. Worth & Denver City.....10 mos.	456	\$5,459,134	\$1,891,839	\$7,350,973	\$682,423	\$114,798	\$2,530,010	67.90	\$2,516,967	\$2,081,164	\$1,972,490	\$2,911,234
Wichita Valley.....Oct.	256	\$133,449	\$29,244	\$162,693	\$17,538	.....	.....	56.60	\$75,243	\$68,821	\$42,468	\$94,659
Wichita Valley.....10 mos.	256	\$750,355	\$28,918	\$779,273	\$100,024	.....	.....	70.20	\$314,575	\$251,374	\$121,146	\$209,601
Columbus & Greenville.....Oct.	167	\$102,426	\$34,547	\$136,973	\$30,390	\$2,527	\$48,914	70.90	\$42,493	\$38,474	\$40,426	\$40,426
Columbus & Greenville.....10 mos.	167	\$971,163	\$284,869	\$1,256,032	\$289,769	\$31,719	\$461,057	77.70	\$283,653	\$235,034	\$129,954	\$408,451
Delaware & Hudson.....Oct.	887	\$3,441,795	\$285,884	\$3,727,679	\$379,707	\$39,493	\$1,608,631	94.00	\$237,702	\$151,979	\$119,372	\$336,886
Delaware & Hudson.....10 mos.	887	\$24,406,587	\$3,252,687	\$27,659,274	\$3,445,342	\$438,868	\$12,755,532	94.00	\$1,701,009	\$835,787	\$745,373	\$6,407,274
Delaware, Lackawanna & Western.....Oct.	994	\$5,358,544	\$1,213,069	\$6,571,613	\$604,426	\$119,356	\$3,204,909	84.60	\$1,149,422	\$712,502	\$599,762	\$1,514,049
Delaware, Lackawanna & Western.....10 mos.	994	\$41,896,040	\$11,743,818	\$53,639,858	\$6,867,798	\$1,144,549	\$27,100,258	84.70	\$9,388,202	\$5,257,851	\$5,858,263	\$11,339,145
Denver & Rio Grande Western.....Oct.	2,593	\$2,634,588	\$441,616	\$3,076,204	\$591,830	\$43,219	\$1,246,956	89.40	\$360,813	\$193,637	\$216,058	\$755,920
Denver & Rio Grande Western.....10 mos.	2,593	\$20,257,724	\$4,758,916	\$25,016,640	\$4,211,497	\$451,551	\$9,157,616	76.40	\$6,434,142	\$4,825,527	\$5,121,142	\$3,072,571
Denver & Salt Lake.....Oct.	255	\$199,598	\$20,384	\$219,982	\$23,764	\$841	\$79,399	96.20	\$8,949	\$73	\$2,571	\$10,514
Denver & Salt Lake.....10 mos.	255	\$918,449	\$177,130	\$1,095,579	\$42,713	\$9,785	\$415,547	108.00	\$94,000	\$184,052	\$160,218	\$59,324
Detroit & Mackinac.....Oct.	385	\$147,800	\$24,415	\$172,215	\$31,881	\$1,210	\$62,055	76.70	\$44,281	\$34,205	\$35,913	\$1,295
Detroit & Mackinac.....10 mos.	385	\$1,162,754	\$294,016	\$1,456,770	\$256,589	\$501,115	\$587,010	90.00	\$157,751	\$54,909	\$42,435	\$43,626
Detroit & Toledo Shore Line.....Oct.	61	\$333,635	.....	\$333,635	\$24,578	\$2,363	\$119,068	52.80	\$159,826	\$132,825	\$52,665	\$136,482
Detroit & Toledo Shore Line.....10 mos.	61	\$2,899,925	.....	\$2,899,925	\$276,787	\$22,433	\$844,765	49.10	\$1,492,465	\$1,326,405	\$686,529	\$500,747
Detroit, Toledo & Ironton.....Oct.	454	\$751,692	\$11,385	\$763,077	\$780,033	\$6,985	\$326,796	98.90	\$8,914	\$4,367	\$174,457	\$7,139
Detroit, Toledo & Ironton.....10 mos.	454	\$7,245,480	\$104,864	\$7,350,344	\$1,552,757	\$59,859	\$2,712,242	84.70	\$1,338,907	\$1,011,984	\$171,362	\$86,115
Duluth & Iron Range.....Oct.	278	\$633,157	\$18,388	\$651,545	\$732,705	\$807	\$193,231	62.50	\$2,370,903	\$1,918,404	\$1,938,372	\$690,116
Duluth & Iron Range.....10 mos.	281	\$5,651,324	\$163,658	\$5,814,982	\$984,137	\$12,163	\$1,710,514	62.50	\$994,384	\$839,679	\$838,247	\$607,298
Duluth, Missabe & Northern.....Oct.	304	\$1,520,427	\$28,645	\$1,549,072	\$153,508	\$2,960	\$418,651	44.00	\$7,324,904	\$6,021,933	\$5,991,859	\$4,416,921
Duluth, Missabe & Northern.....10 mos.	304	\$12,224,878	\$370,475	\$12,605,353	\$1,652,889	\$1,488,352	\$6,362,870	46.50	\$7,324,904	\$6,021,933	\$5,991,859	\$4,416,921
Duluth, South Shore & Atlantic.....Oct.	591	\$289,278	\$1,278	\$290,556	\$432,548	\$7,270	\$202,683	81.50	\$79,954	\$46,929	\$43,113	\$38,741
Duluth, South Shore & Atlantic.....10 mos.	591	\$2,407,242	\$881,348	\$3,288,590	\$645,792	\$66,445	\$1,861,663	89.40	\$388,273	\$69,976	\$28,090	\$505,158
Duluth, Winnipeg & Pacific.....Oct.	178	\$142,866	\$21,738	\$164,604	\$47,431	\$2,935	\$67,197	95.90	\$6,863	\$3,353	\$5,710	\$54,329
Duluth, Winnipeg & Pacific.....10 mos.	178	\$1,385,198	\$203,680	\$1,588,878	\$326,286	\$41,330	\$724,820	94.70	\$86,309	\$4,508	\$33,360	\$159,641
Elgin, Joliet & Eastern.....Oct.	459	\$1,903,207	\$59	\$1,903,266	\$156,280	\$11,178	\$457,033	69.50	\$638,047	\$550,314	\$397,546	\$466,455
Elgin, Joliet & Eastern.....10 mos.	459	\$15,305,517	.....	\$15,305,517	\$1,484,815	\$120,698	\$5,512,421	62.70	\$6,386,073	\$5,509,579	\$4,277,714	\$2,476,320
El Paso & Southwestern.....Oct.	1,139	\$702,246	\$136,219	\$838,465	\$186,034	\$31,300	\$252,434	76.90	\$208,588	\$137,600	\$151,899	\$194,530
El Paso & Southwestern.....10 mos.	1,139	\$7,095,292	\$1,568,091	\$8,663,383	\$1,558,354	\$484,971	\$3,116,966	68.30	\$2,934,854	\$2,024,068	\$1,833,559	\$2,072,618
Erie.....Oct.	2,039	\$7,990,238	\$1,011,966	\$9,002,204	\$1,104,457	\$146,177	\$4,092,984	90.20	\$2,934,854	\$2,024,068	\$1,833,559	\$2,072,618
Erie.....10 mos.	2,039	\$58,224,975	\$11,063,399	\$69,288,374	\$9,163,491	\$1,356,244	\$35,080,258	97.00	\$2,269,275	\$608,888	\$650,119	\$6,083,508
Chicago & Erie.....Oct.	269	\$1,019,432	\$75,596	\$1,095,028	\$1,146,951	\$21,265	\$432,621	73.40	\$305,085	\$270,068	\$67,860	\$335,803
Chicago & Erie.....10 mos.	269	\$8,021,935	\$955,604	\$8,977,539	\$1,124,941	\$195,280	\$4,048,035	78.90	\$1,950,766	\$1,432,355	\$1,426,014	\$2,287,748
New Jersey & New York.....Oct.	45	\$188,950	\$1,008,860	\$1,197,810	\$24,113	\$1,995	\$68,811	107.70	\$103,537	\$79,913	\$179,368	\$143,795
New Jersey & New York.....10 mos.	45	\$1,385,198	\$203,680	\$1,588,878	\$326,286	\$41,330	\$724,820	91.60	\$36,456	\$15,437	\$28,239	\$32,135
N. Y., Susquehanna & Western.....Oct.	135	\$325,085	\$58,686	\$383,771	\$478,928	\$2,005,787	\$3,271,894	97.20	\$92,914	\$156,049	\$256,615	\$13,230
N. Y., Susquehanna & Western.....10 mos.	135	\$2,306,764	\$613,397	\$2,920,161	\$362,643	\$36,224	\$2,005,787	81.30	\$174,588	\$100,000	\$67,921	\$13,339
Florida East Coast.....Oct.	764	\$607,611	\$209,842	\$817,453	\$1,104,063	\$13,257	\$305,614	69.90	\$3,350,363	\$2,696,704	\$2,442,322	\$905,529
Florida East Coast.....10 mos.	764	\$6,651,857	\$3,158,442	\$9,810,299	\$1,813,402	\$132,705	\$3,471,777	70.50	\$51,131	\$45,249	\$36,855	\$9,114
Fort Smith & Western.....Oct.	249	\$133,266	\$27,992	\$161,258	\$31,158	\$4,797	\$54,420	74.30	\$139,748	\$132,455	\$79,325	\$79,325
Fort Smith & Western.....10 mos.	249	\$1,017,161	\$236,215	\$1,253,376	\$263,990	\$47,833	\$469,037	81.30	\$252,264	\$192,662	\$108,295	\$181,181
Galveston Wharf.....Oct.	13	.....	.....	.....	\$23,403	\$7,544	\$302,211	79.60	\$264,365	\$94,389	\$36,384	\$820,681
Galveston Wharf.....10 mos.	13	.....	.....	.....	\$49,712	.....	.....	74.30	\$139,748	\$132,455	\$79,325	\$79,325
Georgia.....Oct.	328	\$357,727	\$102,200	\$459,927	\$45,573	\$21,441	\$222,597	73.30	\$67,197	\$97,745	\$60,257	\$151,512
Georgia.....10 mos.	328	\$2,911,332	\$991,538	\$3,902,870	\$411,564	\$199,031	\$2,012,504	82.90	\$190,614	\$127,274	\$63,857	\$196,863
Georgia & Florida.....Oct.	405	\$100,743	\$17,730	\$118,473	\$19,126	\$8,509	\$4,466	82.90	\$190,614	\$127,274	\$63,857	\$196,863
Georgia & Florida.....10 mos.	405	\$900,028	\$133,787	\$1,033,815	\$169,726	\$81,606	\$437,302	82.90	\$190,614	\$127,274	\$63,857	\$196,863

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1922—CONTINUED

Name of road.	Average mileage operated during period.			Operating revenues			Operating expenses			Operating ratio.	Net from operation.		Net after rentals 1921.
	Freight.	Passenger.	Total.	Freight.	Passenger.	Total.	Traffic.	Trans- portation.	General.		Operating income (or loss).	Net after rentals.	
Grand Trunk Western.....	347	\$1,125,225	\$1,944,614	\$1,400,041	\$1,611,162	\$3,011,203	\$25,596	\$613,058	\$51,239	\$185,316	\$137,507	\$21,431	\$129,531
Atlantic & St. Lawrence.....	347	11,088,886	13,505,456	1,559,697	2,947,533	4,507,230	273,453	5,460,432	500,250	10,604,322	2,901,154	496,993	982,828
.....	166	1,684,211	391,078	2,237,076	625,235	340,999	50,638	1,210,446	119,974	2,364,939	107,863	877,317	1,207,738
Chic., Det. & Canada Gr. Tr. Co.	59	184,936	6,963	208,583	18,266	14,759	2,940	61,948	3,546	99,438	109,145	95,832	53,304
.....	189	505,182	30,701	535,883	49,505	48,054	7,602	251,827	161,197	3,068,172	1,059,752	1,005,752	380,727
.....	189	3,748,326	364,742	4,113,068	495,805	580,564	85,013	2,142,751	151,197	3,068,172	1,059,752	1,005,752	380,727
Great Northern	8,255	9,250,827	1,337,308	11,605,480	1,380,339	2,146,369	132,552	4,419,124	194,487	8,318,984	71,700	3,286,496	2,456,976
.....	10 mos.	63,508,919	12,470,769	84,415,554	11,369,912	16,453,510	1,368,935	33,927,177	2,073,272	63,672,727	77,800	18,742,827	11,906,357
Green Bay & Western.....	262	105,533	9,986	124,989	20,612	16,198	2,865	48,335	2,589	100,502	60,400	24,487	15,869
.....	10 mos.	898,248	153,156	1,051,404	213,643	171,200	24,500	435,433	26,086	870,735	265,510	185,199	119,200
Gulf Coast Lines.....	.....	705,059	157,329	862,388	139,643	148,638	25,124	258,216	34,084	600,736	337,111	296,445	210,294
.....	.....	6,416,297	1,562,528	8,561,450	1,368,147	1,324,727	262,969	2,368,204	348,398	5,761,477	67,700	2,799,973	2,414,894
Gulf & Ship Island.....	307	186,900	41,216	248,738	55,582	35,182	8,549	81,733	11,657	193,071	77,600	55,667	30,409
.....	10 mos.	307	1,914,824	392,348	2,464,983	449,472	77,234	757,514	115,652	1,773,516	691,467	504,551	204,157
Gulf, Mobile & Northern.....	436	351,429	32,832	403,782	55,522	63,257	17,204	133,643	15,889	285,515	70,700	118,267	79,936
.....	10 mos.	436	3,182,661	336,450	3,674,169	544,032	142,383	1,257,280	154,333	2,699,999	73,400	974,170	746,881
Hocking Valley	348	1,282,066	102,112	1,503,820	141,841	660,648	13,216	485,403	31,310	1,332,311	88,600	171,509	86,296
.....	10 mos.	348	9,330,855	881,736	11,174,715	1,132,066	117,116	3,816,435	308,969	8,441,258	75,500	2,733,457	1,844,605
Illinois Central	4,784	12,335,765	2,146,274	15,595,017	2,233,858	3,710,096	210,244	5,218,272	292,866	11,747,305	73,500	3,847,712	2,855,049
.....	10 mos.	4,784	97,402,219	19,756,859	126,023,025	16,380,358	1,879,319	5,566,527	468,849	9,909,853	76,600	29,434,416	20,733,689
Yazoo & Mississippi Valley.....	1,380	1,579,174	382,525	2,097,365	491,141	368,706	31,035	707,397	2,889	118,044	115,400	24,029	8,499
.....	10 mos.	1,381	11,503,241	3,212,127	15,686,008	3,698,258	263,207	6,245,256	482,007	1,788,718	87,900	1,897,290	715,238
International & Great Northern.....	1,159	1,299,218	213,173	1,654,293	271,640	345,744	28,101	614,994	46,677	1,311,723	79,400	342,570	198,976
.....	10 mos.	1,159	8,734,596	2,057,133	12,016,867	2,792,133	266,222	5,153,292	468,849	9,909,853	82,500	2,107,014	1,766,271
Kansas City.....	272	85,919	7,449	102,335	23,211	23,530	5,244	63,170	2,889	118,044	115,400	24,029	8,499
.....	10 mos.	272	935,777	100,649	1,109,348	251,865	234,678	603,201	59,524	1,195,466	107,800	15,719	167,486
Kans. City, Mex. & Orient of Tex. Co.	465	122,070	14,852	145,656	22,931	22,931	4,631	73,996	4,217	127,044	87,200	18,612	12,546
.....	10 mos.	465	1,039,706	111,675	1,226,105	240,328	47,025	718,925	64,218	1,365,952	111,400	139,847	200,719
Kansas City Southern.....	767	1,321,715	179,907	1,631,247	205,989	384,802	36,179	551,786	63,413	1,241,800	76,100	389,447	282,422
.....	10 mos.	767	11,818,285	1,671,268	14,842,127	1,936,722	363,212	5,308,740	672,409	11,327,276	76,300	3,514,897	2,536,387
Texas & Ft. Smith.....	81	188,798	14,399	221,625	19,784	22,525	5,635	54,228	8,334	110,095	49,700	111,530	100,558
.....	10 mos.	81	1,477,733	143,751	1,756,564	178,943	52,102	503,207	86,198	1,018,094	58,600	71,509	61,549
Kansas, Oklahoma & Gulf.....	314	251,173	14,612	275,250	43,992	31,457	5,389	83,952	101,808	1,683,328	71,200	680,147	581,933
.....	10 mos.	314	2,146,165	124,053	2,362,475	443,143	55,389	839,652	101,808	1,683,328	71,200	680,147	581,933
Lake Superior & Ishpeming.....	33	103,957	48	122,872	23,146	13,909	293	122,872	2,910	63,648	53,600	57,024	51,538
.....	10 mos.	33	855,838	652	1,020,337	98,964	2,271	220,700	26,133	555,492	54,400	46,845	408,573
Lake Terminal	13	.....	.....	100,498	12,683	1,317	.....	.....	1,701	68,353	68,000	32,145	27,977
.....	10 mos.	13	.....	879,486	94,685	90,819	.....	444,709	16,538	646,751	73,500	232,735	178,030
Lehigh & Hudson River.....	96	268,540	3,800	284,266	28,177	33,569	1,458	117,755	8,165	209,124	73,400	75,702	63,523
.....	10 mos.	96	1,830,153	39,158	1,974,461	269,221	14,673	891,082	77,746	1,616,653	81,900	357,808	224,407
Lehigh & New England.....	235	546,881	1,918	555,834	56,556	62,726	7,532	169,495	15,431	311,745	56,100	244,089	195,350
.....	10 mos.	235	3,346,090	18,924	3,437,504	548,395	94,430	1,259,919	159,710	2,980,125	86,700	457,379	325,834
Lehigh Valley	1,335	4,469,262	552,642	5,488,912	706,824	2,165,479	96,238	2,764,924	118,971	5,876,901	107,100	387,989	480,063
.....	10 mos.	1,334	41,523,669	5,892,117	51,322,044	6,993,621	1,044,773	23,990,180	1,255,863	48,772,119	95,000	2,549,925	789,200
Los Angeles & Salt Lake.....	1,137	1,258,767	882,758	1,894,327	347,085	417,738	39,085	582,788	42,497	1,510,231	79,700	384,096	274,983
.....	10 mos.	1,140	10,311,005	4,399,072	16,147,335	3,339,135	462,251	5,279,857	425,041	13,587,088	84,100	2,560,247	1,452,582
Louisiana & Arkansas.....	302	218,974	34,078	263,529	58,608	48,669	7,961	85,949	8,465	209,130	79,400	54,399	29,252
.....	10 mos.	302	2,304,750	324,994	2,707,184	337,363	76,593	837,254	83,052	1,917,571	70,800	789,813	559,959
Louisville & Nashville.....	5,038	7,876,696	1,982,557	10,622,310	1,333,649	2,523,942	220,995	4,052,261	221,679	8,408,614	79,200	2,213,696	1,709,051
.....	10 mos.	5,038	75,670,993	18,651,022	100,757,149	14,234,783	2,124,058	38,343,375	2,256,636	82,642,973	82,000	18,114,474	14,932,484
Louisville, Henderson & St. Louis.....	199	215,282	60,220	299,341	58,838	29,260	6,325	103,161	7,993	205,577	68,700	93,764	71,077
.....	10 mos.	199	1,923,431	591,727	2,723,475	539,924	61,980	921,597	82,396	1,933,038	71,000	790,437	647,110
Maine Central	1,194	1,209,985	350,343	1,697,855	275,423	247,382	16,401	825,797	51,041	1,417,899	83,500	279,956	192,340
.....	10 mos.	1,194	11,787,127	3,884,164	16,967,159	2,736,255	3,111,963	7,492,639	472,323	13,980,104	82,400	2,987,055	2,040,575
Midland Valley.....	383	341,646	78,851	142,836	122,648	45,000	5,542	135,680	14,530	322,787	72,900	120,049	103,309
.....	10 mos.	383	2,968,021	708,817	3,845,482	638,413	49,273	1,154,681	148,011	2,430,084	72,900	1,415,598	1,266,540
Minneapolis & St. Louis.....	1,649	1,395,434	144,624	1,696,675	181,832	276,590	23,821	735,556	41,852	1,260,631	77,500	366,044	200,375
.....	10 mos.	1,649	10,681,731	1,521,584	12,912,434	1,768,234	237,873	6,091,425	395,778	10,759,308	83,300	2,153,126	1,474,975
Minneapolis, St. Paul & S. S. Marie.....	4,383	4,042,683	625,029	5,025,351	717,599	920,097	58,137	2,038,085	107,477	3,862,768	76,900	1,162,383	914,897
.....	10 mos.	4,383	28,709,893	6,128,298	38,322,298	5,644,210	612,608	608,221	1,041,618	29,613,959	77,300	8,708,339	6,183,384
Mississippi Central	258	110,899	18,197	135,462	23,755	35,334	5,764	46,898	6,903	118,654	77,300	16,808	10,566
.....	10 mos.	259	1,013,485	166,395	1,231,253	197,795	57,265	430,152	69,678	1,068,598	86,800	162,655	100,177
Missouri & North Arkansas.....	344	97,396	20,890	128,802	9,592	9,217	1,853	57,858	3,007	81,527	63,300	47,275	39,065
.....	10 mos.	311	368,021	89,473	491,781	42,998	10,040	260,762	19,214	387,030	78,700	104,751	97,410
Missouri, Kansas & Texas.....	1,670	2,467,169	461,174	3,218,517	353,756	775,505	39,208	981,508	79,794	2,236,990	69,500	981,662	755,887
.....	10 mos.	1,670	18,895,831	4,659,803	25,939,290	5,295,251	456,761	7,814,861	881,703	17,346,239	66,900	8,593,051	6,867,546
Mo., Kansas & Texas of Texas.....	1,737	1,750,255	422,849	2,392,821	340,163	514,377	38,505	800,142	68,024	1,754,130	73,300	638,691	582,369
.....	10 mos.	1,737	11,796,656	4,167,116	17,531,249	2,819,099	401,231	6,878,094	738,632	13,752,486	78,400	3,778,763	3,250,043

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1922—CONTINUED

Name of road.	Average mileage operated during period.	Operating revenues				Operating expenses				Operating ratio.	Net from railway operation.	Operating income (or loss).	Net after rentals.	Net after rentals 1921.
		Freight.	Passenger.	Total.	(inc. misc.)	Traffic.	Trans- portation.	General.	Total.					
Wichita Falls & Northwestern.....	Oct. 329	\$139,341	\$20,489	\$171,602	\$35,587	\$731	\$49,190	\$6,993	\$109,175	63.60	\$62,427	\$51,538	\$24,487	\$61,710
10 mos. 329		939,456	221,566	1,279,167	285,930	9,019	520,433	83,281	1,069,917	83.30	214,500	97,541	—94,632	494,288
Missouri Pacific.....	Oct. 7,149	6,787,245	1,394,411	9,187,213	1,511,305	156,009	3,756,688	250,125	7,775,812	84.60	1,411,401	1,054,137	668,525	1,750,078
10 mos. 7,274		60,990,614	13,764,508	82,310,143	14,411,426	1,541,005	33,804,555	2,582,161	69,418,016	84.30	12,892,127	9,208,611	6,013,204	8,816,922
Mobile & Ohio.....	Oct. 1,165	1,406,695	171,913	1,676,524	175,094	45,564	585,752	45,741	1,249,051	74.50	427,473	338,418	307,496	378,072
10 mos. 1,165		12,281,142	1,446,677	14,494,081	1,743,904	433,250	5,544,848	471,416	11,253,166	77.60	3,240,915	2,643,073	2,113,796	895,979
Monongahela.....	Oct. 106	328,785	43,523	382,016	46,363	1,274	121,243	9,045	253,365	66.40	128,651	120,651	59,699	240,782
10 mos. 106		2,530,329	318,172	2,900,122	406,689	14,345	842,067	92,959	1,859,890	64.10	1,040,232	960,068	558,902	459,480
Monongahela Connecting.....	Oct. 7	.....	.....	162,707	25,665	517	92,674	4,885	152,022	93.40	10,685	8,582	—4,023	4,921
10 mos. 7		.....	.....	1,344,688	186,186	5,248	643,062	68,988	1,146,988	85.30	197,700	176,265	134,239	—87,879
Montana.....	Oct. 56	211,030	477	213,355	29,196	1,042	33,597	6,927	146,988	49.40	107,956	95,622	112,949	11,509
10 mos. 56		792,841	6,956	809,624	189,090	10,101	199,896	61,789	717,558	88.60	92,066	60,351	151,129	172,707
Nashville, Chattanooga & St. Louis.....	Oct. 1,258	1,611,712	396,523	2,139,604	306,791	53,428	825,839	67,526	1,707,753	79.10	451,851	416,189	413,335	447,337
10 mos. 1,258		13,132,860	3,837,987	18,286,321	2,820,997	669,018	7,235,226	584,869	15,930,544	82.10	2,355,777	1,989,350	2,306,612	1,291,862
Nevada Northern.....	Oct. 165	66,216	5,125	71,176	10,974	425	12,236	3,033	32,820	43.10	43,356	35,821	34,045	618
10 mos. 165		379,008	43,867	463,411	98,971	4,317	87,599	29,112	261,316	56.40	202,095	137,954	151,986	—93,440
Newburgh & South Shore.....	Oct. 7	.....	.....	171,051	38,654	.....	78,005	4,462	168,484	98.50	2,567	—9,852	—12,386	61,590
10 mos. 7		.....	.....	1,587,065	140,161	.....	635,356	36,953	1,184,428	74.60	402,637	277,249	250,006	100,506
New Orleans Great Northern.....	Oct. 274	180,271	34,206	227,741	31,897	5,976	70,352	7,537	139,042	61.10	88,699	73,555	74,050	—34,804
10 mos. 274		1,657,519	360,544	2,111,704	295,510	52,496	670,724	97,819	1,434,982	68.00	676,722	525,472	484,006	10,217
New York Central.....	Oct. 6,914	24,032,009	7,492,034	35,733,437	4,114,989	528,913	13,102,088	752,046	28,464,727	79.70	7,268,710	5,456,556	5,362,344	6,018,202
10 mos. 6,914		180,293,627	76,436,202	291,754,285	34,395,139	3,350,234	109,745,308	7,902,901	236,110,241	80.90	55,644,044	38,384,865	39,997,455	39,867,711
Cincinnati Northern.....	Oct. 244	304,738	10,378	324,409	47,694	4,387	122,772	7,689	250,349	77.20	74,060	61,371	50,805	60,155
10 mos. 244		2,539,821	148,932	2,766,666	563,409	50,244	999,968	80,933	2,194,527	79.30	572,139	421,377	221,888	635,837
Cleveland, Cin., Chic. & St. Louis.....	Oct. 2,406	5,744,267	1,393,830	7,815,904	904,135	96,153	3,054,735	169,634	6,236,326	79.80	1,579,568	1,278,491	1,028,727	491,989
10 mos. 2,409		50,224,623	13,318,823	69,158,561	8,020,633	101,989	26,470,783	1,712,362	52,503,745	75.50	16,692,836	12,839,079	11,264,218	6,166,388
Indiana Harbor Belt.....	Oct. 119	.....	.....	1,168,757	106,357	3,985	471,976	18,270	374,484	63.60	423,253	374,587	230,344	233,613
10 mos. 119		.....	.....	8,472,273	1,012,311	41,308	3,324,647	191,828	5,511,514	63.10	2,960,759	2,567,613	1,676,935	395,283
Kanawha & Michigan.....	Oct. 1,862	5,565,085	1,663,826	8,255,638	905,837	93,879	2,717,188	137,785	6,021,608	72.90	2,234,030	1,759,716	1,668,703	2,156,059
10 mos. 1,862		44,904,855	15,903,755	67,610,184	7,151,661	908,607	23,456,551	1,410,364	48,522,781	71.80	19,087,403	15,073,634	14,152,000	11,970,641
Pittsburg & Lake Erie.....	Oct. 227	2,975,945	258,574	3,338,714	277,310	18,893	885,662	60,474	2,140,721	64.10	1,197,993	1,042,876	1,315,503	132,333
10 mos. 227		19,193,092	2,291,417	22,258,238	2,692,100	201,182	7,666,411	615,066	19,987,914	89.80	2,270,324	1,371,985	2,683,767	1,422,063
Toledo & Ohio Central.....	Oct. 10 mos.	Included in New York Central.	Included in New York Central.	Included in New York Central.	Included in New York Central.	Included in New York Central.	Included in New York Central.	Included in New York Central.	Included in New York Central.	Included in New York Central.	Included in New York Central.	Included in New York Central.	Included in New York Central.	Included in New York Central.
New York, Chicago & St. Louis.....	Oct. 1,242	3,394,612	149,691	3,697,433	418,094	810,127	2,430,602	115,826	2,838,639	77.30	838,794	622,303	573,027	455,356
10 mos. 1,242		29,813,761	1,471,249	32,337,457	3,998,009	6,342,719	12,248,461	1,130,420	24,580,550	75.90	7,786,907	5,971,321	5,698,920	3,584,879
New York, New Haven & Hartford.....	Oct. 2,000	5,888,693	4,191,769	11,502,713	1,518,586	2,338,809	4,766,566	275,808	9,132,831	79.10	2,409,882	1,993,949	1,121,631	1,485,951
10 mos. 2,003		49,233,804	40,773,605	101,487,178	14,102,441	21,076,697	41,556,141	2,825,063	81,666,235	80.50	19,820,943	15,951,132	10,982,099	1,533,228
Central of New England.....	Oct. 295	615,131	19,334	669,220	140,079	4,968	247,661	10,195	542,916	81.10	126,304	104,127	71,508	76,362
10 mos. 295		5,067,973	192,882	5,539,200	1,217,222	43,108	2,024,375	111,653	4,305,826	77.70	1,233,374	1,008,630	622,888	949,288
New York, Ontario & Western.....	Oct. 569	810,762	120,718	1,106,625	171,699	316,190	640,849	32,758	1,181,590	106.80	—74,965	—114,974	—149,086	59,192
10 mos. 569		5,784,210	2,805,599	10,300,579	1,469,287	1,929,855	4,972,215	300,612	8,847,329	85.60	1,453,250	1,095,971	690,249	1,221,060
Norfolk & Western.....	Oct. 2,237	6,088,987	839,587	7,302,396	1,202,899	76,789	2,748,926	149,600	7,084,075	97.00	218,321	—232,128	—39,076	2,012,239
10 mos. 2,237		66,314,329	7,532,448	76,637,774	10,234,420	782,567	23,750,430	1,474,298	55,166,666	72.00	16,362,927	18,152,418	10,809,004	6,629,799
Norfolk Southern.....	Oct. 930	594,753	119,837	770,714	94,672	21,838	308,559	26,790	578,009	75.00	21,471,108	16,362,927	18,152,418	10,809,004
10 mos. 930		5,293,442	1,217,166	6,993,007	1,008,315	218,717	2,868,970	294,894	5,489,458	79.60	1,403,599	1,093,433	851,798	516,028
Northern Pacific.....	Oct. 6,630	7,924,298	1,196,449	10,005,134	1,196,590	143,125	3,641,819	208,891	7,583,692	75.80	2,421,442	1,694,823	2,182,746	3,892,578
10 mos. 6,642		58,115,230	12,991,993	78,209,889	10,894,501	1,396,346	29,735,052	2,124,554	63,566,365	81.20	14,733,525	7,740,748	10,569,489	7,420,573
Northwestern Pacific.....	Oct. 506	512,258	200,699	791,157	95,697	7,993	264,130	14,910	513,954	65.00	277,203	228,063	214,461	213,964
10 mos. 501		3,765,186	2,263,883	6,017,526	1,003,877	71,036	2,572,919	146,776	4,719,178	69.20	2,098,348	1,621,217	1,468,339	1,594,851
Pennsylvania.....	Oct. 10,537	43,203,046	13,454,536	62,950,906	7,749,364	563,535	26,082,936	1,311,607	54,216,538	86.20	8,714,368	5,766,189	4,190,096	6,154,236
10 mos. 10,537		359,863,373	122,032,931	529,497,176	65,630,790	5,753,526	206,923,518	13,343,808	435,513,530	82.30	93,983,846	68,913,427	61,245,197	29,629,799
Baltimore, Chesapeake & Atlantic.....	Oct. 87	87,243	36,935	130,886	17,739	1,837	95,740	3,678	139,149	106.30	—8,263	—10,363	—10,820	21,014
10 mos. 87		894,587	403,457	1,354,628	143,674	19,163	796,220	37,534	1,330,164	98.20	24,464	—23,296	—24,958	95,036
Cumberland Valley & Mart.....	Oct. 10 mos.	Included in Pennsylvania.	Included in Pennsylvania.	Included in Pennsylvania.	Included in Pennsylvania.	Included in Pennsylvania.	Included in Pennsylvania.	Included in Pennsylvania.	Included in Pennsylvania.	Included in Pennsylvania.	Included in Pennsylvania.	Included in Pennsylvania.	Included in Pennsylvania.	Included in Pennsylvania.
Grand Rapids & Indiana.....	Oct. 398	609,571	1,461,072	2,608,127	304,207	25,954	1,214,056	60,680	2,169,758	83.20	438,369	298,153	185,746	340,648
10 mos. 398		7,298,050	16,582,609	26,195,602	2,761,919	180,295	11,279,510	571,202	19,249,568	73.50	6,946,034	5,421,487	4,708,999	3,149,829
Long Island.....	Oct. 82	71,978	25,925	101,979	17,831	2,471	83,486	2,588	118,723	116.40	—16,744	—17,744	—17,735	—18,419
10 mos. 82		641,591	320,988	996,696	98,220	19,097	668,694	24,902	1,049,507	105.30	—52,811	—73,218	—85,282	—59,364

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1922—CONTINUED

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses			Operating ratio.	Net from railway operation.	Operating income (or loss).	Net after rentals.	Net after rentals 1921.
		Freight.	Passenger.	Total.	Maintenance of way and structures.	Traffic.	Trans- portation.					
New York, Phila. & Norfolk.....Oct. 10 mos.	359	\$516,322	\$538,462	\$1,054,784	\$211,840	\$222,577	\$19,730	\$1,036,610	\$88.70	\$132,082	\$117,847	\$88,007
West Jersey & Seashore.....Oct. 10 mos.	359	4,192,249	6,932,054	12,058,932	1,693,027	2,110,272	284,138	9,767,514	81.00	2,291,418	1,437,276	1,214,863
Peoria & Pekin Union.....Oct. 10 mos.	19	29,870	180,995	210,865	35,003	11,136	77,931	133,083	75.50	47,912	27,912	53,471
Pere Marquette.....Oct. 10 mos.	2,212	2,888,104	3,431,161	6,319,265	260,749	139,533	89,471	1,125,240	73.50	375,540	223,824	165,670
Philadelphia & Reading.....Oct. 10 mos.	2,217	24,475,805	4,168,213	31,587,005	3,722,464	6,139,324	51,787	23,451,832	69.50	1,100,097	943,937	803,766
Atlantic City.....Oct. 10 mos.	1,126	7,497,414	866,935	8,364,349	746,623	1,342,738	59,924	3,093,684	74.20	8,135,153	6,668,449	5,367,016
Atlantic City.....Oct. 10 mos.	1,127	52,676,167	8,204,262	60,880,429	7,405,596	16,467,913	621,422	5,400,003	60.90	3,462,557	3,292,573	3,288,631
Perkiomen.....Oct. 10 mos.	176	1,238,893	2,743,790	4,000,000	640,082	369,648	67,602	3,436,538	78.40	13,916,774	11,982,867	10,029,907
Port Reading.....Oct. 10 mos.	41	106,360	6,589	112,949	6,480	3,919	106	51,217	83.40	679,878	480,469	78,646
Pittsburg & Shawmut.....Oct. 10 mos.	41	954,020	83,846	1,037,866	73,686	41,610	1,079	560,723	43.60	66,248	61,436	56,676
Pittsburg & West Virginia.....Oct. 10 mos.	21	1,048,473	.....	1,048,473	20,036	6,466	229	852,414	52.20	514,059	463,101	403,909
Pittsburg & Shawmut.....Oct. 10 mos.	102	62,185	3,508	65,693	22,357	36,085	2,290	852,414	54.30	609,850	463,444	3,110
Pittsburg & West Virginia.....Oct. 10 mos.	102	763,766	48,256	812,022	252,571	338,158	16,752	974,046	141.20	28,744	28,909	13,748
Quincy, Omaha & Kansas City.....Oct. 10 mos.	85	214,979	8,791	223,770	61,761	4,620	887	214,789	116.60	138,562	147,533	179,109
Pittsburg, Shawmut & Northern.....Oct. 10 mos.	252	645,903	236,039	881,942	331,827	598,691	36,169	1,805,736	85.20	37,247	213,375	631,629
Richmond, Fred. & Potomac.....Oct. 10 mos.	117	475,403	294,205	769,608	96,594	144,744	7,420	639,574	78.50	493,843	213,375	631,629
Rutland.....Oct. 10 mos.	117	4,638,211	2,926,450	7,564,661	1,076,207	1,242,741	80,361	5,994,050	91.90	11,830	9,342	29,894
St. Louis, San Francisco & Texas.....Oct. 10 mos.	134	1,192,897	151,061	1,343,958	202,594	330,945	3,349	1,200,927	117.40	170,311	194,112	170,311
St. Louis Southwestern.....Oct. 10 mos.	968	12,888,688	1,256,466	14,145,154	1,987,312	2,125,189	417,747	10,660,846	89.20	16,528	12,603	13,557
St. Louis Southwestern of Texas.....Oct. 10 mos.	807	644,864	99,810	744,674	157,523	339,281	20,958	5,026,599	100.00	16,528	39,312	95,916
San Antonio & Aransas Pass.....Oct. 10 mos.	807	4,888,156	874,821	5,762,977	967,599	1,230,323	831,953	4,888,156	78.20	1,403,009	1,230,462	1,045,349
San Antonio, Uvalde & Gulf.....Oct. 10 mos.	317	61,488	19,475	80,963	17,365	32,353	2,558	69,711	74.60	40,123	38,255	13,697
Seaboard Air Line.....Oct. 10 mos.	3,563	3,054,746	504,779	3,559,525	897,674	1,231,594	157,067	3,266,144	85.40	205,958	186,244	35,594
Southern.....Oct. 10 mos.	6,971	8,905,346	2,557,321	11,462,667	1,885,855	2,103,347	41,425,019	8,705,381	61.40	711,533	621,146	534,890
Alabama Great Southern.....Oct. 10 mos.	318	493,236	169,977	663,213	171,717	339,281	18,098	4,166,846	62.30	5,547,355	4,810,018	4,385,871
Cin., New Orleans & Tex. Pacific.....Oct. 10 mos.	338	1,160,920	290,400	1,451,320	175,693	339,281	20,958	823,507	111.60	26,935	51,009	58,133
Georgia, Southern & Florida.....Oct. 10 mos.	402	2,331,842	100,400	2,432,242	370,140	1,093,717	90,294	6,486,700	112.40	63,323	1,004,352	949,134
New Orleans & Northeastern.....Oct. 10 mos.	207	3,076,440	793,105	3,869,545	3,498,511	1,093,717	90,294	4,353,184	90.80	439,598	299,777	199,075
Northern Alabama.....Oct. 10 mos.	110	997,739	116,459	1,114,198	621,434	1,633,407	122,439	3,135,617	84.00	595,059	411,816	258,353
Southern Pacific.....Oct. 10 mos.	7,118	13,004,566	3,719,634	16,724,200	2,974,056	5,210,292	264,328	11,320,276	75.90	370,905	321,526	218,693
Arizona Eastern.....Oct. 10 mos.	382	2,206,362	280,937	2,487,300	366,868	747,812	31,575	1,620,368	81.60	245,970	1,767,561	1,608,789

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1922—CONTINUED

Name of road.	Average mileage operated during period.	Operating revenues—Total			Operating expenses—			Operating ratio.	Net from railway operation.	Operating income (or loss).	Net rentals.	Net after rentals 1921.
		Freight.	Passenger.	(Inc. misc.)	Maintenance of way and structures.	Equip-ment.	Traffic.	Trans-portion.	General.	Total.		
Atlantic S. S. Lines.....	Oct. 10 mos. 1,379	\$1,074,155	\$61,559	\$1,199,461	\$16,927	\$227,244	\$24,997	\$696,068	\$29,433	\$1,024,669	\$162,680	\$132,874
Galv., Harris, & San Antonio.....	Oct. 10 mos. 1,379	8,731,522	531,112	9,738,518	132,416	1,974,557	197,546	5,629,629	274,074	8,208,222	1,429,620	248,741
Houston & Texas Central.....	Oct. 10 mos. 1,379	1,656,316	388,121	2,158,831	331,802	3,570,963	371,617	7,133,727	723,051	15,209,023	1,922,451	1,874,499
Houston East & West Texas.....	Oct. 10 mos. 1,379	13,375,457	3,745,035	18,127,408	3,317,802	3,570,963	371,617	7,133,727	723,051	15,209,023	1,922,451	1,874,499
Louisiana Western.....	Oct. 10 mos. 1,379	270,523	83,740	382,825	13,143	111,780	4,550	103,945	16,146	253,712	101,818	98,732
Morgan's Lt. & Tex. R. R. & S. S. Oct. 10 mos. 1,379	332	8,552,978	2,915,981	12,235,944	2,407,598	2,827,960	238,835	4,167,985	80,910	2,142,761	600,329	612,410
Texas & New Orleans.....	Oct. 10 mos. 1,379	2,056,025	417,214	2,594,547	43,747	528,348	34,815	1,012,526	80,910	2,142,761	600,329	612,410
Spokane International.....	Oct. 10 mos. 1,379	270,523	83,740	382,825	13,143	111,780	4,550	103,945	16,146	253,712	101,818	98,732
Spokane, Portland & Seattle.....	Oct. 10 mos. 1,379	2,345,734	862,814	3,447,569	601,325	683,482	84,350	1,010,915	174,810	2,595,076	382,495	382,495
Tennessee Central.....	Oct. 10 mos. 1,379	610,457	146,205	814,876	30,286	730,456	30,286	730,456	30,286	730,456	382,495	382,495
Terminal R. R. Assn. of St. Louis.....	Oct. 10 mos. 1,379	4,553,025	1,507,022	6,576,767	1,322,209	1,578,794	152,339	2,621,882	329,355	6,122,310	454,457	454,457
East St. Louis Connecting.....	Oct. 10 mos. 1,379	570,295	149,486	772,937	224,214	106,031	11,666	286,477	24,146	657,895	115,042	115,042
St. Louis Merchants' Bridge Term. Oct. 10 mos. 1,379	507	5,212,549	1,523,946	7,171,702	1,520,465	1,787,681	108,219	2,749,022	252,268	6,773,067	69,835	69,835
St. Louis Transfer.....	Oct. 10 mos. 1,379	89,633	135,627	980,494	148,548	86,607	3,208	341,587	59,404	674,086	306,408	306,408
Texas & Pacific.....	Oct. 10 mos. 1,379	454,231	133,136	662,128	60,940	104,361	9,297	220,229	22,538	476,591	125,092	125,092
Toledo, Peoria & Western.....	Oct. 10 mos. 1,379	3,980,207	1,432,491	5,985,589	574,380	897,836	101,330	2,003,473	202,021	2,153,732	219,129	219,129
Trinity & Brazos Valley.....	Oct. 10 mos. 1,379	207,707	39,623	264,313	40,186	269,750	6,967	112,896	9,635	1,509,134	112,427	112,427
Ulster & Delaware.....	Oct. 10 mos. 1,379	1,396,893	364,919	1,877,872	331,344	74,831	10,549	1,289,901	25,771	802,143	895,833	895,833
Union.....	Oct. 10 mos. 1,379	570,295	149,486	772,937	224,214	106,031	11,666	286,477	24,146	657,895	115,042	115,042
Union Pacific.....	Oct. 10 mos. 1,379	5,212,549	1,523,946	7,171,702	1,520,465	1,787,681	108,219	2,749,022	252,268	6,773,067	69,835	69,835
Oregon Short Line.....	Oct. 10 mos. 1,379	89,633	135,627	980,494	148,548	86,607	3,208	341,587	59,404	674,086	306,408	306,408
Oregon-Wash. R. R. & Nav.....	Oct. 10 mos. 1,379	454,231	133,136	662,128	60,940	104,361	9,297	220,229	22,538	476,591	125,092	125,092
St. Joseph & Grand Island.....	Oct. 10 mos. 1,379	3,980,207	1,432,491	5,985,589	574,380	897,836	101,330	2,003,473	202,021	2,153,732	219,129	219,129
Utah.....	Oct. 10 mos. 1,379	207,707	39,623	264,313	40,186	269,750	6,967	112,896	9,635	1,509,134	112,427	112,427
Virginian.....	Oct. 10 mos. 1,379	1,396,893	364,919	1,877,872	331,344	74,831	10,549	1,289,901	25,771	802,143	895,833	895,833
Wabash.....	Oct. 10 mos. 1,379	570,295	149,486	772,937	224,214	106,031	11,666	286,477	24,146	657,895	115,042	115,042
Western Maryland.....	Oct. 10 mos. 1,379	5,212,549	1,523,946	7,171,702	1,520,465	1,787,681	108,219	2,749,022	252,268	6,773,067	69,835	69,835
Western Pacific.....	Oct. 10 mos. 1,379	89,633	135,627	980,494	148,548	86,607	3,208	341,587	59,404	674,086	306,408	306,408
Wheeling & Lake Erie.....	Oct. 10 mos. 1,379	454,231	133,136	662,128	60,940	104,361	9,297	220,229	22,538	476,591	125,092	125,092

Teachers of Transportation to Meet

A meeting of university teachers of transportation will be held in connection with the annual convention of the American Economic Association, to be held in Chicago on December 27-30.

The following sessions have been arranged:

Congress Hotel, December 29, 2 P. M.—Business Meeting and Round Table Discussion. Organization of the Association. Formation of plans and policies. "The Aims of College Courses of Transportation."

Congress Hotel, December 30, 2 P. M.—Business Meeting and Round Table Discussion. Election of officers. Adoption of a constitution. "The Methods Used in Presenting Transportation Courses."

University Club, December 30, 8 P. M.—Dinner. Special speakers on current transportation problems.

Consolidation Hearings to Be Resumed

Hearing on the Interstate Commerce Commission's consolidation plan will be resumed before Commissioner Hall and Examiner Healy at Washington, January 17. Evidence will be received with respect to carriers which, under the tentative plan, should be considered in connection with the following proposed systems as there outlined, or in connection with such alternative systems as may be proposed:

System No. 13—Union Pacific—North Western

Union Pacific
St. Joseph & Grand Island
Oregon Short Line
Oregon-Washington Railroad & Navigation Company
Los Angeles & Salt Lake
Chicago & North Western
Chicago, St. Paul, Minneapolis & Omaha
*Lake Superior & Ishpeming
Wabash lines west of the Mississippi River

System No. 16—Santa Fe

Atchison, Topeka & Santa Fe
Gulf, Colorado & Santa Fe
Colorado & Southern
Fort Worth & Denver City
*Denver & Rio Grande
*Western Pacific
*Utah Railway
*Northwestern Pacific
*Nevada Northern

System No. 17—Southern Pacific-Rock Island

Southern Pacific Company
*Nevada Northern
Chicago, Rock Island & Pacific
Chicago, Rock Island & Gulf
Arizona & New Mexico
El Paso & Southwestern
*San Antonio & Aransas Pass
*Trinity & Brazos Valley
*Midland Valley
Vicksburg, Shreveport & Pacific
Chicago, Peoria & St. Louis.

It is expected that the main affirmative case in respect of each carrier, particularly the documentary evidence, will be presented at the hearing in Washington. Carriers starred in the above list, and other carriers not listed, may introduce all their evidence at the western hearings if the commission is so advised in advance. The western hearings will be held primarily to afford state commissions, communities and the public an opportunity to present evidence and to cross-examine witnesses, provided the commission is advised in season to recall witnesses.

The existing Union Pacific and Southern Pacific systems will not be expected to present their evidence at this hearing. Opportunity will be given them later.

Certain respondents tentatively included in systems No. 14—Burlington-Northern Pacific and No. 15—Milwaukee-Great Northern, are to present their further evidence at the hearing commencing on January 17. Due notice will be given of the time and place of western hearings.

Respondents named in systems No. 18—Frisco-Katy Cotton Belt and No. 19—Chicago-Missouri Pacific, have been asked to be prepared to make their main affirmative cases at Washington upon short notice at any time after January.

Traffic News

A bill to reduce all freight rates on agricultural products and live stock by 33⅓ per cent or to the level existing on June 24, 1918, was introduced in the Senate on December 11.

The Transcontinental Passenger Association has announced the same summer excursion round trip fares from California, Nevada, Oregon, Washington and British Columbia to eastern destinations for the summer of 1923 as were in effect this year. The excursion fares from Chicago, St. Louis, Memphis, New Orleans, etc., to California and the north Pacific coast in effect in 1922 will also be maintained next summer.

Hearing on Proposed Grain Rate Reductions

A hearing was begun before Examiner Hunter of the Interstate Commerce Commission at Washington on December 11 on the complaint of the Public Utilities Commission of Kansas against the western railroads, asking a further reduction in the rates on grain and hay. Henry J. Waters, formerly president of the Kansas Agricultural College, spoke for Kansas and the farmers, declaring that agricultural products are bearing more than their share of the cost of transportation.

Priority Orders Vacated

The Interstate Commerce Commission on December 8 issued Amendment 4 to Service Order No. 25 and Amendment 2 to Service Order No. 24, which vacated and set aside those service orders, effective December 11, removing all restrictions on the use of open top cars east of the Mississippi river and canceling the priority accorded coal and certain other specified commodities, both east and west of the Mississippi river. The orders state that the emergency has been "measurably relieved."

Service Order No. 22 is still outstanding. This requires all railroads to forward traffic to destination by the routes most available to expedite its movement and relieve congestion, with appropriate provision for the protection of the rate over the route designated.

Coal Production

The total estimated output of soft coal in the week ended December 2, including coal coked, mine fuel, and local sales, was 10,336,000 net tons, according to the Geological Survey. As Thanksgiving Day reduced the working time during that week to about 5¼ days the average daily production was 1,969,000 net tons, the highest rate attained in any week this year. Preliminary reports of cars loaded during the first 4 days of the week December 4-9 indicate nearly the same rate of production and a total output of about 11,100,000 tons.

The estimated cumulative production of bituminous coal this year to December 2, inclusive, stands at 365,387,000 tons which is 3 per cent less than in the corresponding period of 1921.

Shipments of bituminous coal from lower Lake Erie ports declined in the week ended December 3, and the season virtually came to a close on that date. Reports furnished by the Ore and Coal Exchange show that 554,525 net tons were dumped, of which 535,505 tons were cargo coal and 19,020 tons were vessel fuel. Cumulative dumpings during the present season to December 3, stood at 18,991,482 tons, a decrease of 18 per cent when compared with the average for the three years preceding. Of the 18,171,965 tons of cargo coal dumped to date, 1,149,063 tons, or 6.3 per cent, were consigned to destinations not ordinarily taking Lake coal.

More freight cars were loaded with bituminous coal on Monday, December 11, than on any one day in the last three years, which is as far back as the Car Service Division of the American Railway Association has any daily record. The total was 45,886 cars. This exceeded by 429 cars the best previous record which was attained on November 22, 1920, at which time 45,457 cars were loaded. This also exceeded by 588 cars the total loading on October 30 last which was the highest for any one day since April 1 last, when the strike of bituminous miners began.

Commission and Court News

Interstate Commerce Commission

The commission has suspended until April 6, the operation of schedules which propose to reduce rates on petroleum and its products to Western Trunk Line destinations, from points in Texas on the Texas & New Orleans and the Houston East & West Texas, which include among others Beaumont, Houston, Orange and Port Arthur; also schedules which propose to extend proportional rates on petroleum from Shreveport and group to Vicksburg and to Natchez to shipments destined to points beyond.

State Commissions

The Kansas Public Utilities Commission has denied the petition of the Leavenworth & Topeka Railroad for permission to discontinue freight service between Leavenworth and Meriden.

The State Utilities Commission of Ohio has dismissed for want of jurisdiction the application of the Detroit, Toledo & Ironton for authority to issue \$1,000,000 employees' improvement certificates to be sold to employees of the company. The commission held that its supervision over utility financing extends only over securities issued for construction and betterments. While the application specified that the certificates were to be used for the purpose of promoting cordial relations between employees and the company, it was not established definitely what was to be done with the money derived from their sale.

Personnel of Commissions

L. E. Gettle, member of the Railroad Commission of Wisconsin, has been elected chairman of the commission succeeding Carl T. Jackson, who has been acting chairman. Mr. Jackson will continue as a member of the commission.

Court News

Failure to Warn Passenger of Danger of Riding on Platform Not Negligence

The Texas Court of Civil Appeals holds that where a passenger who had been smoking in a car where smoking was prohibited and after being told by the porter that if he wanted to smoke he would have to go out on the platform, went upon the platform, where he slipped and fell off the train and was injured, the porter was not negligent in failing to warn the passenger of the danger of going on the platform.—*Rhodes v. Houston, E. & W. T.* (Tex. Civ. App.) 242 S. W. 263.

Injury by Defective Car on Private Siding

A railroad company left a loaded car on an industry track in such a defective condition that a drawhead pulled out while in use. The consignee's employees substituted a chain, which broke. Some days later its inspector, knowing this, used a wire cable to couple it into a short train. This broke with the first strain of a reverse movement and the car, with another car, broke away, but was stopped. The engineer, not knowing his train had parted, collided with the cars in making a run for a grade, and a brakeman in the consignee's employ was thrown from the top of the car and injured. The Circuit Court of Appeals, Sixth Circuit, holds that, under these facts, the negligence of the consignee, its inspector and engineer were not merely intervening causes in ordinary and natural sequence that should have been anticipated by the railroad company, but, on the contrary, the supervening, efficient and proximate cause of the collision and consequent injury, and that the railroad company was not liable for negligence in delivering the defective car as being the proximate cause of the injury.—*Lanz v. Pennsylvania*, 281 Fed. 796.

Equipment and Supplies

Locomotives

THE UNION PACIFIC is inquiring for 5 Mallet type locomotives with 12,000-gal. tenders, and for 73 Santa Fe type locomotives.

THE ILLINOIS CENTRAL is reported to be considering the purchase of 15 Mountain type locomotives and a number of Pacific type locomotives.

THE IMPERIAL JAPANESE GOVERNMENT RAILWAYS have ordered through Mitsui & Co., New York, two 9-ft. cut rotary snow plows from the American Locomotive Company.

THE CENTRAL OF NEW JERSEY, reported in the *Railway Age* of December 2 as inquiring for five, 6-wheel switching locomotives, has ordered this equipment from the American Locomotive Company.

THE CHICAGO, BURLINGTON & QUINCY, reported in the *Railway Age* of November 18 as inquiring for 15 Mikado type and 10 Santa Fe type locomotives, is expected to place orders for this equipment this week.

THE CHICAGO & NORTH WESTERN is inquiring for 18 Mikado type superheater freight locomotives, with a total weight of engine in working order of 312,000 lb.; 20, 0-6-0 type superheater switching locomotives, with a total weight of engine in working order of 184,000 lb., and 12 Pacific type superheater passenger locomotives, with a total weight of engine in working order of 294,000 lb.

Freight Cars

THE MINARETS & WESTERN is inquiring for 200, 40-ton flat cars.

THE BENGAL & NORTHWESTERN (India) is inquiring for 250 freight cars.

THE SUMMERS STEEL CAR COMPANY, Pittsburgh, is inquiring for 500 ore cars of 75 tons' capacity.

THE UNITED GAS IMPROVEMENT COMPANY, Philadelphia, Pa., is inquiring for 150, 50-ton coal cars.

THE MUSCLE SHOALS, BIRMINGHAM & PENSACOLA is inquiring for 50, 40-ton box cars and 50 flat cars.

THE ILLINOIS CENTRAL is reported to be considering the purchase of a large number of freight cars.

THE ATLANTIC COAST LINE is inquiring for 500 sets of 40-ton trucks for cars to be repaired in its own shops.

THE STEAMSHIP FUEL CORPORATION, 33 Rector street, New York City, is inquiring for 100 hopper cars of 70 tons' capacity. The company may increase the number of cars when the order is placed.

THE PERE MARQUETTE, reported in the *Railway Age* of December 2 as having ordered 1,000 box cars from the Western Steel Car & Foundry Company, ordered 1,500 box cars from this company instead of the 1,000 as reported.

THE BALTIMORE & OHIO is inquiring for 2,000 box cars. This is in addition to the inquiry for 2,000 hopper cars and 1,000 gondola cars, mentioned in the *Railway Age* of November 18 and November 25. It is expected that contracts for the hopper and the gondola cars will be placed this week.

Passenger Cars

THE LONG ISLAND, reported in the *Railway Age* of October 21 as inquiring for 40 motor cars, 20 electric trailer cars, 20 trailer coaches for steam suburban service, 10 coaches for steam service and 2 combination baggage and mail cars, has ordered this equipment from the American Car & Foundry Company.

THE SOUTHERN PACIFIC, reported in the *Railway Age* of December 9 as contemplating coming in the market soon for about

140 passenger train cars, will order 15 steel coaches for main line through service, 60 steel coaches for local service, 10 steel diners, 11 steel buffet baggage cars, 35 steel combination mail and baggage cars and 10 steel baggage cars.

Iron and Steel

THE NEW YORK CENTRAL has received bids for 1,300 tons of steel for bridges.

THE GREAT NORTHERN is in the market for 3,345 tons of structural bridge steel for delivery in 1923.

THE BALTIMORE & OHIO has ordered 750 tons of steel for bridges from the American Bridge Company.

THE MISSOURI PACIFIC has ordered 549 tons of structural steel for turntables at St. Louis, Mo., from the American Bridge Company.

THE NORTHERN PACIFIC has ordered 115 tons of structural steel from the American Bridge Company for Center avenue bridge, Minneapolis, Minn.

THE ILLINOIS CENTRAL has ordered 509 tons of structural steel for 387 ft. 6-in. plate girder spans for Simpson, Ill., from the American Bridge Company.

THE ATCHISON, TOPEKA & SANTA FE has ordered 176 tons of structural steel from Joseph E. Ryerson & Son for an addition to its ice plant at Bakersfield, Cal.

THE LAKE SUPERIOR & ISHPeming has ordered 193 tons of structural steel from the Wisconsin Bridge & Iron Company to be used in its car repair shop at Marquette, Mich.

Machinery and Tools

THE NORFOLK & WESTERN is inquiring for a 20-in. engine lathe, 6-ft. between centers.

THE PENNSYLVANIA, reported in the *Railway Age* of October 28 as inquiring for a list of heavy machine tool requirements, has ordered from various builders about 35 tools, including lathes, grinders and horizontal borers.

THE GREAT NORTHERN is inquiring for one steam operated locomotive crane, 30-ton capacity, 50 ft. boom, 8 wheel car, self-propelling, equipped with enclosed cab, also for two Bucyrus 30-B or similar gasoline shovels with caterpillar mounting with one yard dipper, two 35 ft. booms complete with cable and two one yard clam shell buckets.

Signaling

THE NEW YORK, NEW HAVEN & HARTFORD will install the Union Switch & Signal Company's continuous inductive system of train control on its double track line from the west end of its Providence (R. I.) passenger station to Auburn, R. I., five miles. This territory will be divided into 17 blocks of which 11 are in automatic territory and six within interlocking limits.

THE UNITED ELECTRIC RAILWAYS, Providence, R. I., will have automatic block signals on the line between Providence and Woonsocket, about 15 miles. An order has been given to the Union Switch & Signal Company for 32 color light signals, style N; also for ten "automatic flagmen," showing three aspects. All of this apparatus is to be energized by a current of 2,300 volts, 25 cycle. All installation work will be done by the signal company.

THE ANN ARBOR RAILROAD in connection with its improvements at Manhattan Junction, Toledo, Ohio, to provide for the accommodation of the trains of the Pennsylvania Railroad, running to and from Detroit, is enlarging the interlocking. The present machine, 44 levers, will have electric levers added, and electric detector locking will be provided on the Ann Arbor tracks. The signals on the Ann Arbor will be of the position-light type. Similar improvements will be made at the Hallett interlocking, at the junction of the Ann Arbor with the Toledo Terminal. The apparatus for all this work is furnished by the Union Switch & Signal Company.

Supply Trade News

The Willamette Iron & Steel Works, Portland, Ore., will begin the manufacture of gear type locomotive designed for use on logging railways, on January 1. The company expects to build one locomotive a month.

R. M. Chissom, formerly chief clerk to the purchasing agent of the Chicago, Indianapolis & Louisville at Chicago, has been appointed special representative in the railroad department of the Lehon Company, Chicago.

William N. Shaw, vice-president of the New York Air Brake Company, of New York City, has resigned and in future will devote all his time to the Eisemann Magneto Corporation, Brooklyn, N. Y., of which he has been president for the past four years, and to other interests.

John J. Kehoe, who represented Warren, Corning & Co., no longer handles this account. Mr. Kehoe continues to represent the Lehigh Railway Supply Company at 1 Madison avenue, New York City, and all his time in the future will be devoted to this work. This company is the selling representative of manufacturers serving the railway, industrial and marine trade.

Frank N. Phelps was recently placed in charge of railroad sales of Baker industrial tractors and trucks, manu-



F. N. Phelps

factured by the Baker R. & L. Company, Cleveland, Ohio. Mr. Phelps was born at Boston, Mass., on December 14, 1878. He received a mechanical engineering education at Massachusetts Institute of Technology and has been identified with the electric vehicle industry since 1911, when he took over the sale of Baker road trucks in New England. Mr. Phelps now becomes special railroad representative of the same company as noted above.

E. T. Fishwick, formerly sales manager of the Worthington Pump & Machinery Corporation, New York, has been elected vice-president in charge of sales to succeed F. H. Jones, resigned. William Goodman, assistant to vice-president, has been elected vice-president in charge of engineering and manufacturing to succeed J. E. Sague, resigned. Both Mr. Jones and Mr. Sague will remain with the corporation in a consulting capacity. James C. Barnaby, plant engineer of the Staten Island Shipbuilding Company, is now in charge of certain engineering work in the Diesel oil engine division of the Worthington Pump & Machinery Corporation.

W. L. Allen, vice-president and general manager of the Laclede Steel Company, St. Louis, Mo., has resigned to become associated after January 1, 1923, with Frank H. Johnson of Chicago, Ill., in the sale of Laclede Steel and other steel companies' products. After leaving college as a metallurgist, Mr. Allen spent several years in the operating departments of blast furnace, open hearth and finishing mill, and was one of the sales engineers of the Carnegie Steel Company. He later acted as commercial engineer of the R. D. Nuttall Company in the development of heat treated gears. Mr. Allen was president of the Valley Steel Company of East St. Louis, Ill., until that company was taken over by the Laclede Steel Company in 1918.

Alfred B. Carhart has resigned as vice-president and sales manager of the Crosby Steam Gage & Valve Co., to become president and general manager of the **Precision Instrument Company, Inc.**, Newark, N. J. Mr. Carhart was for more than ten years works manager of the Crosby factory. He is a mechanical and electrical engineer and a graduate of Princeton University. The Precision Instrument Co., Inc., has acquired control of the Precision Instrument Co., of Newark, N. J., and the present executive officers will retain their connection with the company. The company's New York City office will be at 114 Liberty street, and the factory will later be moved to New York.

W. E. Caldwell has been appointed sales manager of the **Cleveland Twist Drill Company**, Cleveland, Ohio, succeeding **E. G. Buckwell**, retired. **Harry Jenson** has been appointed



W. E. Caldwell

assistant sales manager; **Robert G. Berrington**, sales representative in the Philadelphia district, and **George Kast**, treasurer, has taken on the duties of secretary. Mr. Caldwell, who has been with the Cleveland Twist Drill Company since 1901, was appointed assistant sales manager in 1916. Mr. Jenson was for more than 15 years a representative of the company in the Philadelphia territory, and Mr. Berrington, for 13 years a representative of the sales department in the central states and Canada, has returned to the Cleveland Twist Drill Company after resigning two years ago to act as sales agent for a line of machine tools in the Cleveland territory. Mr. Buckwell, retired secretary and sales manager, previous to 1899 was a traveling salesman for the Sargent Company and later a member of the retail hardware company of McClung, Buffat & Buckwell at Knoxville, Tenn.

Obituary

W. B. Everest, general traffic manager of the Westinghouse Electric & Manufacturing Company, died on December 5 at his home in Pittsburgh, Pa. Mr. Everest was born July 3, 1868, at



W. B. Everest

Newark, N. J. After completing his high school education he entered the employ of the United States Electric Company at Newark; this company was later merged with the Westinghouse Electric & Manufacturing Company. While at the Newark works of the electric company, he served as chief clerk to the general superintendent of the works. In May, 1884, he was transferred to the East Pittsburgh works, retaining his position of chief clerk. In 1885 he was transferred to the auditing department, in charge of cost, and was later appointed storekeeper and shipper, and then traffic manager of the East Pittsburgh works. In 1914 he was made general traffic manager of the company, which position he held at the time of his death.

Railway Construction

ATCHISON, TOPEKA & SANTA FE.—This company has awarded a contract to Sharp & Fellowes, of Los Angeles, for the construction of second track on the Arizona division for 40 miles between Griffith, Ariz., and Topock, and for 65.1 miles between Bagdad, Cal., and Daggett. Between Bagdad and Latic, the double track will follow a new line. This company also contemplates the construction of second track on the Albuquerque division for 8.6 miles between Dalies, N. M., and Rio Puerco, and for 32.6 miles between Perea, N. M., and Defiance.

ATCHINSON, TOPEKA & SANTA FE.—This company has awarded a contract to R. E. McKee, El Paso, Tex., for the construction of a brick and steel passenger station at Phoenix, Ariz., to be built in conjunction with the Southern Pacific at a cost of approximately \$300,000.

BELT RAILWAY OF CHICAGO.—This company has closed bids for the construction at Chicago of a brick freight house, 40 ft. by 220 ft., with a wood platform 300 ft. long, the total cost of which will be approximately \$75,000.

CHICAGO, BURLINGTON & QUINCY.—This company will construct a new double track line two miles long, to cost approximately \$185,000, at Weston, Mo., to replace track which has been damaged by high water. This road is also contemplating the construction of a new freight and passenger station at Weston.

CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS.—This company has awarded a contract to the Ogle Construction Company, Chicago, Ill., for the construction of a 400-ton, three track, concrete coaling station at Hillsboro, Ill.

GREAT NORTHERN.—This company contemplates the construction early in 1923 of a new engine house and repair shop at St. Cloud, Minn.

GREAT NORTHERN.—This company has awarded a contract to the Roberts & Schaefer Company, Chicago, for the construction of a 500-ton fireproof, three track, automatic electric roller skip type locomotive coaling plant at Havre, Mont.

GULF, COLORADO & SANTA FE.—This company has awarded a contract to Doullutt & Williams, of Galveston, Tex., for the construction of two, 400 ft. steel and concrete train sheds at Galveston, to cost approximately \$30,000.

LONGVIEW, PORTLAND & NORTHERN.—This company will receive bids at its headquarters at Kelso, Wash., until January 1, 1923, for the construction of roadbed, bridges and culverts for approximately 8½ miles of railroad in Cowlitz county, Wash. Twenty-three miles of track are expected to be laid in 1923.

LOUISIANA & ARKANSAS.—This company, through its agents, Harrington, Howard & Ash, consulting engineers of Kansas City, Mo., has awarded a contract to the Herman & McCain Construction Company, Little Rock, Ark., for the building of a one story, brick and reinforced concrete locomotive shop to cost approximately \$150,000, at Minden, La. The shops of the company were previously at Stamps, Ark.

OREGON, CALIFORNIA & EASTERN.—This company has awarded a contract to the Eschbach-Bruce-Nettleton Company, Seattle, Wash., for the construction of 14 miles of line from Hildebrand, Ore., to the Sprague river to cost approximately \$100,000. Further construction plans of this company were reported in the *Railway Age* of September 23, page 589.

PENNSYLVANIA.—This company is revising the plans for the elevation of its tracks at Garfield boulevard near Leavitt street, Chicago, which were made several years ago, and will begin construction in the spring.

ST. LOUIS-SAN FRANCISCO.—This company has closed bids for the construction of a five-stall, one-story, frame roundhouse, 70 ft. by 92 ft. to be built at Muskogee, Okla., to replace one recently destroyed by fire.

Railway Financial News

ALABAMA & MISSISSIPPI.—Operation May Be Resumed.—See Mississippi Export.

ATLANTIC & NORTH CAROLINA.—Authorized to Issue Bonds.—The Interstate Commerce Commission has authorized an issue of \$325,000 of first mortgage 20-year, 6 per cent gold bonds.

BALTIMORE & OHIO.—Income for 1922.—The preliminary income account for the year ended December 31, 1922, shows net railway earnings of \$22,703,709 and a surplus after the 4 per cent dividend on the preferred stock of \$1,117,110, compared with a surplus for 1921 of \$3,885,806.

Commenting on the results for 1922, President Daniel Willard, said:

That the results of the year are not materially better is due, first, to the suspension of a large proportion of the coal operations on the company's lines from April to September, and, second, and more particularly, to the effect upon the earnings of the company for the three months to September 30, during which period the strike of the shopmen was in progress.

For the first six months of the year to June 30 the net railway operating income was \$14,580,295, an increase compared with the same period of the previous year of \$6,950,000.

For the three months to September 30 there was a deficit of \$2,089,075, a decrease compared with the same period of the previous year of \$9,729,000.

For the three months to December 31 (December estimated) the income aggregates \$10,212,489, an increase compared with the same period of the previous year of \$3,630,000.

Total net railway operating income for the year \$22,703,709, an increase compared with the previous year of \$850,000.

By the provisions of the \$35,000,000 loan of July 1, 1919, there is to be set aside out of the income before dividends a sum equal to \$3,500,000 per annum, to be devoted to capital expenditures. The total appropriations made under these provisions, to and including the year 1922, aggregate \$12,250,000, on account of the total of \$17,500,000 to be so appropriated during the five years beginning with July 1, 1919.

BANGOR & AROOSTOOK.—Authorized to Issue Equipment Trust Certificates.—The Interstate Commerce Commission has authorized an issue of \$250,000 of equipment trust certificates to be sold at not less than 98.

CAROLINA, CLINCHFIELD & OHIO.—Asks Authority to Issue Bonds.—This company has applied to the Interstate Commerce Commission for authority to issue \$50,000,000 of first and consolidated mortgage bonds.

CHICAGO & ALTON.—Asks Authority for Receivers' Certificates.—The receivers have applied to the Interstate Commerce Commission for authority to issue \$2,000,000 of 6 per cent receivers' certificates.

CHICAGO, MILWAUKEE & ST. PAUL.—Loan Extended.—The Interstate Commerce Commission has approved this company's application for a loan of \$10,000,000 from the revolving fund, to mature March 1, 1930, for the purpose of meeting at maturity on January 1, 1923, a previous loan of like amount.

CHICAGO, PEORIA & ST. LOUIS.—Suggested Plans for Reorganization.—The patrons of this road are making strenuous opposition to the proposal of the bondholders to dismantle the line. Herbert A. Tuohy of Springfield, Ill., chairman of the recently organized Patrons' Committee has addressed a letter to the Illinois Commerce Commission and the Interstate Commerce Commission, calling attention to the value of the property and its potential earning capacity. The Circuit Court at Springfield, Ill., acting on a petition for authority to discontinue the operation of trains has decided that the receivers must make their application to the Interstate Commerce Commission, "or any other government body deemed by them to have jurisdiction." About 500 citizens representing 70 towns which would be adversely affected by the abandonment, were present at the hearing. The attorney for the patrons declared that many towns in the best farming regions in the state will be left entirely without railroad service if the road ceases operation.

CINCINNATI, INDIANAPOLIS & WESTERN.—Asks Authority for Equipment Trust.—This company has applied to the Interstate Commerce Commission for authority to assume obligation and liability for \$300,000 of preferred stock of the Cincinnati, Indianapolis & Western Car Equipment Company.

DENVER & RIO GRANDE WESTERN.—Asks Authority to Issue Receivers' Certificates.—This company has applied to the Interstate Commerce Commission for authority to issue and sell \$5,000,000 of 6 per cent receivers' certificates for the purpose of making improvements to its property.

DENVER & RIO GRANDE.—Extend Time for Deposit.—The Sutro protective committee has issued a notice to holders of the first and refunding mortgage 5 per cent gold bonds and 7 per cent cumulative adjustment gold bonds and certificates of deposit therefor, announcing that the time within which deposits of these securities may be made with the committee has been extended to and including January 10 next.

FORT SMITH & WESTERN.—To Be Sold.—The sale of this road at public auction will be held on January 16, 1923, at Ft. Smith, Ark. The entire property of the company, which operates a single track line between Ft. Smith, Ark., and Guthrie, Okla., and Oklahoma City, a total mileage of approximately 250 miles, will be disposed of to the highest bidder. C. T. O'Neal, Ft. Smith, Ark., is the receiver for the road.

GRAYSONIA, NASHVILLE & ASHDOWN.—Asks Authority to Issue Securities.—This company has applied to the Interstate Commerce Commission for authority to issue \$300,000 of stock, \$300,000 of first mortgage bonds and \$300,000 of second mortgage bonds.

ILLINOIS CENTRAL.—Asks Authority for Lease.—This company has applied to the Interstate Commerce Commission for authority to lease the Chicago, Memphis & Gulf.

INTERNATIONAL-GREAT NORTHERN.—This company on December 1 acquired and began the operation of the property formerly owned by the International & Great Northern Railway and operated by that company and its receiver.

As a final step in the reorganization of the International and Great Northern, there have been registered in the secretary of state's office at Austin, Tex., three temporary bonds, one for \$17,250,000, one for \$750,000 and a third for \$17,000,000. They will be exchanged for definitive bonds of \$1,000 each later and \$7,500,000 in stock issued. Evidence has been introduced showing that the owners of the property had put up \$4,350,000 in cash as a working fund, which is to be included in the capital stock. A final order has been entered by the Railroad Commission of Texas fixing the valuation of the property at \$44,939,000, and the cash deposit was included in that. Among the cancellations were \$159,000 of bonds covering the bridge across the Colorado River at Austin. There were also cancelled \$11,135,000 of bonds and \$2,400,000 of receiver's certificates, besides certain equipment obligations.

Capital Stock Purchased.—See St. Louis-San Francisco.

INTERSTATE.—Equipment Trust Authorized.—The Interstate Commerce Commission has authorized this company to assume obligation and liability in respect of \$1,200,000 of equipment trust certificates to be issued by the Fidelity Trust Company of Philadelphia.

KENTWOOD & EASTERN.—Authorized to Abandon Line.—The Louisiana Public Service Commission has authorized this company to abandon operation and dismantle its line from Kentwood, La., on the Illinois Central, southeasterly to Scanlon, 16 miles. The application states that the line was opened for operation in 1905 and practically its entire tonnage has been forest products. The timber holdings in the vicinity are exhausted and the traffic of the line has disappeared. Hard surface highways now practically parallel the road.

MICHIGAN CENTRAL.—Dividends.—This company has declared an additional dividend of 6 per cent and the regular semi-annual dividend of 4 per cent, both payable January 29 to stock of record December 29.

MISSOURI-KANSAS-TEXAS.—Asks Authority to Acquire Lines and Issue Securities.—This company has applied to the Interstate Commerce Commission for authority to acquire lines and leaseholds in connection with the reorganization of the M. K. & T. system and for authority to issue \$51,260,650 of general mortgage 6 per cent bonds and \$1,400,000 of common stock.

MISSOURI, KANSAS & TEXAS.—Sold.—This road was sold on December 13 for \$28,000,700 to Randolph & Blumenthal, representatives of the reorganization managers, J. & W. Seligman & Co., and Hallgarten & Co., New York.

OSAGE.—Authorized to Issue Stock.—The Interstate Commerce Commission has authorized an issue of \$197,000 of capital stock to be sold at not less than par and the proceeds used to pay existing indebtedness.

PITTSBURGH & LAKE ERIE.—*New Directors.*—Edward S. Harkness and Robert S. Lovett have been elected directors to succeed William Rockefeller and A. T. Hardin, deceased.

SALT LAKE & UTAH.—*Authorized to Issue Bonds.*—This company has been authorized by the Interstate Commerce Commission to issue \$600,000 of first mortgage 6 per cent bonds by pledging them with the Secretary of the Treasury as partial security for a government loan.

SOUTH GEORGIA.—*Authorized to Issue Stock.*—The Interstate Commerce Commission has authorized an issue of \$199,000 of preferred stock to be exchanged at par for a similar amount of first mortgage 5 per cent bonds which mature on January 1, or to be sold at not less than par, the proceeds devoted to the payment of the bonds.

SOUTHERN.—*Authorized to Procure Authentication and Delivery of Bonds.*—The Interstate Commerce Commission has authorized this company to procure the authentication and delivery of \$5,000,000 of development and general mortgage 4 per cent gold bonds to be held in the treasury until the further order of the commission.

ST. LOUIS-SAN FRANCISCO.—*Acquires I.-G. N. Capital Stock.*—E. N. Brown, chairman of the board of the St. Louis-San Francisco, announced on December 13 that his company has purchased the entire capital stock of \$7,500,000 of the International-Great Northern and will operate its 1,159 miles of line, if approval is given by the Interstate Commerce Commission. The price of the sale is such as to net the certificate holders of the International-Great Northern \$26.75 a share.

Asks Authority to Issue Bonds.—This company has applied to the Interstate Commerce Commission for authority to issue and sell or pledge \$5,644,700 of prior lien mortgage 5½ per cent gold bonds and \$1,047,900 of adjustment mortgage 6 per cent gold bonds.

Railroad Administration Settlements

The United States Railroad Administration reports the following final settlements, and has paid out and received from the several roads the following amounts:

Georgia, Florida & Alabama Railway Co. \$ 120,000
Akron and Barberton Belt Railroad Co. \$ 70,000
Kansas, Oklahoma & Gulf Railway Company paid Director General \$1,410,000

Dividends Declared

Albany & Susquehanna.—Common, extra, \$2.00, payable January 6 to holders of record December 21.

Chicago, Burlington & Quincy.—5 per cent, semi-annually, payable December 26 to holders of record December 16.

Chicago, Indianapolis & Louisville.—Common, 1½ per cent; preferred, 2 per cent; both payable January 10 to holders of record December 30.

Chicago, St. Paul, Minneapolis & Omaha.—Common, 2½ per cent, semi-annually; preferred, 3½ per cent, semi-annually; both payable February 20 to holders of record February 1.

Cleveland, Cincinnati, Chicago & St. Louis.—Common, 1 per cent, quarterly; preferred, 1¼ per cent; both payable January 20 to holders of record December 29.

Joliet & Chicago.—1¼ per cent, quarterly, payable January 1 to holders of record December 15.

Mahoning Coal Railroad.—Common, \$10.00, semi-annually, payable February 1 to holders of record January 15; common, extra, \$15.00, payable December 29 to holders of record December 16.

Michigan Central.—6 per cent, extra, and 4 per cent, semi-annually, payable January 29 to holders of record December 29.

New York Central.—1¼ per cent, quarterly, payable February 1 to holders of record December 29.

Philadelphia, Baltimore & Washington.—3 per cent, semi-annually, payable December 30 to holders of record December 15.

St. Louis, Rocky Mountain & Pacific.—Common, 1 per cent, quarterly; preferred, 1¼ per cent quarterly; both payable December 30 to holders of record December 16.

Troy Union.—6 per cent, annually, payable January 15 to holders of record December 29.

Western Pacific.—Preferred, 1½ per cent, quarterly, payable January 2 to holders of record December 18.

Trend of Railway Stock and Bond Prices

	Dec. 12	Last Week	Last Year
Average price of 20 representative railway stocks	64.84	64.53	57.15
Average price of 20 representative railway bonds	85.31	85.19	80.87

Railway Officers

Financial, Legal and Accounting

J. R. Turney, acting general solicitor of the St. Louis-Southwestern, with headquarters at St. Louis, Mo., has been appointed general solicitor, with the same headquarters. **A. H. Kiskaddon** has been appointed assistant general solicitor, with the same headquarters.

Operating

W. A. Fitton has been promoted to assistant to the general manager of the Southern, with headquarters at Cincinnati, Ohio.

J. E. Smith has been promoted to assistant district superintendent of the Pullman company with headquarters at Cincinnati, Ohio, succeeding C. W. Lewis, deceased.

E. Flynn, whose promotion to general manager of lines west of the Missouri river of the Chicago, Burlington & Quincy, with headquarters at Omaha, Neb., was reported in



E. Flynn

the *Railway Age* of December 2, was born on May 19, 1873, at Bement, Ill. He entered railway service as a trackman on the Chicago & Eastern Illinois in April, 1900. Until November 15, 1906, he was employed in the track department of the Wabash, as a brakeman on the Southern Pacific and the Wabash, and as a brakeman and conductor on the Chicago, Burlington & Quincy. He was promoted to trainmaster on the latter road, with headquarters at Omaha, Neb., on November 15, 1906, and was again

promoted to assistant superintendent, with headquarters at Lincoln, Neb., in 1908. In April, 1909, he was promoted to superintendent, with headquarters at Omaha, Neb., and was transferred to McCook, Neb., in May, 1911. He was transferred to LaCrosse, Wis., in 1913, and to Chicago in June, 1917. He was promoted to general superintendent of the Nebraska district, with headquarters at Lincoln, Neb., in April, 1918, and held this position until his recent promotion to general manager.

T. Rodger, superintendent of telegraph, the Eastern Lines of the Grand Trunk, with headquarters at Montreal, Que., has been promoted to superintendent of telegraphs and telephones with jurisdiction over the entire system, with the same headquarters succeeding H. Hulatt, manager of telegraphs, whose resignation was reported in the *Railway Age* of December 9.

W. A. Card, whose promotion to general superintendent of the Iowa district of the Chicago, Burlington & Quincy, with headquarters at Burlington, Iowa, was reported in the *Railway Age* of December 2, was born on June 22, 1870, in Rochester, N. Y. He entered railway service with the Chicago, Burlington & Quincy on September 10, 1887, as a telegraph operator. He was promoted to chief clerk to the trainmaster at Aurora, Ill., in August, 1894, and held this position until August, 1903, when he was promoted to trainmaster, with headquarters at Beardstown, Ill. He was transferred to Chicago in September, 1905, and was promoted to assistant superintendent, with headquarters at Galesburg, Ill., in July, 1908.

In February, 1909, he was promoted to superintendent, with headquarters at Creston, Iowa, and in July, 1913, was transferred to the St. Joseph division, with headquarters at St. Joseph, Mo., which position he held at the time of his recent promotion to general superintendent.

Walter H. Towne, whose appointment as superintendent of transportation of the Boston & Maine was reported in the *Railway Age* of December 9, was born on July 6, 1884, in Portland, Me., and was educated in the public schools. He entered railway service in 1903 and served as receiving clerk for the Boston & Maine at Salem, Mass. Shortly thereafter he was promoted to assistant cashier and in 1906 was transferred to Peabody, Mass., as cashier. In 1907 he entered the office of the general manager at Boston as a stenographer and shortly thereafter was transferred to the office of the general superintendent in the same capacity. In 1910 he became a clerk in the office of the chief engineer and served in the same capacity in the office of the engineer, maintenance of way, and in the purchasing department. In 1913 he was promoted to inspector of transportation and in 1914 again became cashier at Peabody, Mass. In 1916 he entered the president's office as clerk and stenographer and in 1917 became a transportation clerk in the office of the superintendent of transportation. In 1918 he was appointed assistant to the superintendent of transportation which position he held at the time of his recent promotion.

Traffic

W. J. Farrell has been appointed general agent of the freight department of the Great Northern, with headquarters at Kansas City, Mo., succeeding B. R. Persels.

J. H. Garrity has been appointed western freight agent of the Buffalo, Rochester & Pittsburgh with headquarters at Cincinnati, O. **J. C. Gross** has been appointed division freight agent at Pittsburgh, Pa.

Everett D. Davis has been promoted to general freight agent of the Buffalo, Rochester & Pittsburgh with headquarters at Rochester, N. Y. **W. H. Francis** has been promoted to assistant general freight agent.

Edward A. Niel has been appointed freight traffic manager of the Buffalo, Rochester & Pittsburgh. Mr. Niel was born at Selma, Ala., and was educated at Dallas Academy of that city. He entered railway service as an office boy for the Selma, Rome & Dalton (Southern Railway). A short time thereafter he became a telegraph operator for the same road, which position he left to enter the service of the Western Union Telegraph Company. From 1883 to 1888 he was a stenographer in the office of the superintendent of the East Tennessee, Virginia & Georgia (Southern Railway) at Selma. From 1888 to 1895 he was chief clerk to the assistant general freight agent of the Southern in the same city. He then became general freight and passenger agent of the Mobile & Birmingham (Southern) and served in that capacity until 1899 when he was appointed eastern general freight agent of the Southern. Shortly thereafter he was promoted to general freight agent and in 1904 to traffic manager of the Atlantic & North Carolina (now Norfolk Southern). From 1905 to 1911 he was traffic manager of the Buffalo & Susquehanna and from 1912 to 1920 he was coal freight agent for the Buffalo, Rochester & Pittsburgh. In 1920 he was promoted to general freight agent and held that position until the time of his recent promotion.



E. A. Niel

Mechanical

E. M. Brockmayer has been promoted to road foreman of engines on the Detroit-Canadian division of the Pere Marquette with headquarters at Detroit, Mich.

J. F. Sheahan has been appointed mechanical engineer of the Atlanta, Birmingham & Atlantic with headquarters at Atlanta, Ga. **A. W. Kirkland** has been appointed superintendent of motive power with headquarters at Fitzgerald, Ga.

Engineering, Maintenance of Way and Signaling

R. C. Bardwell, engineer of water service of the Missouri Pacific, with headquarters at St. Louis, Mo., has been appointed superintendent of water supply of the Chesapeake & Ohio, with headquarters at Huntington, W. Va.

G. W. Koontz, roadmaster on the Delaware & Hudson, with headquarters at Carbondale, Pa., has been appointed division engineer of the St. Louis-San Francisco, with headquarters at Ft. Worth, Tex., succeeding P. J. Neff, whose resignation to become assistant to the president of the International-Great Northern was reported in the *Railway Age* of December 9.

Obituary

John T. Chamberlain, for a number of years master car builder of the Boston & Maine, died on December 12 at Medford, Massachusetts. Mr. Chamberlain was born at Eckington, England, on May 21, 1849, and came to this country with his parents shortly thereafter, locating at New York City. At the age of 18 he went to Kent, Ohio, to learn car building. In 1870 he entered the service of the Boston & Albany in its Allston (Boston) shops. In 1888 he left the Boston & Albany to go to Wichita, Kan., as superintendent of the Burton Stock Car Company. Two years later he returned to New England as master car builder of the Boston & Maine. He served in this position until the time of his retirement in 1907. Mr. Chamberlain was president of the Master Car Builders' Association in 1901.



J. T. Chamberlain

F. E. Batturs, assistant passenger traffic manager of the Southern Pacific, with headquarters at San Francisco, died suddenly on December 7 at a hotel in Washington, where he had been attending the hearing before the Interstate Commerce Commission on the Central Pacific case.

J. L. Barnes, general agent for the Atchison, Topeka & Santa Fe, with headquarters at Chanute, Kan., died in that city on November 30. Mr. Barnes was born in Dutchess county, New York, in 1835. He entered railway service September 1, 1859, as a conductor on the first Pullman car ever built, taking the car from Bloomington, Ill., to Chicago. He later became superintendent of the Kansas City, Ft. Scott & Gulf, and when that road was taken over by the Atchison, Topeka & Santa Fe in 1888, he became superintendent of the Southern Kansas division. He held this position until his retirement from active service in 1910. A few years later he was appointed general agent for the Atchison, Topeka & Santa Fe, with headquarters at Chanute, Kan., and he held this position until his death.